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ABSTRACT

Reported are findings from the third year of a project concerned with identification and facilitation of humanistic precocity in early adolescence. The project focused on students who showed a precocious concern with and ability to reason about social, moral, and political problems. Described are attempts to define humanistic precocity and procedures used to select the 120 Talent Search winners for 1975. Content covered in social science and creative writing summer enrichment courses is outlined, and results of evaluation of both the courses and participant selection procedures are provided. Discussed are student counseling and information dissemination facets of the project. It is reported that humanistic precocity was found in quantitatively as well as verbally gifted students. Results of the project are said to include the development of a successful curriculum for training humanistic precocity. Appendixes consist of research studies on the following topics: the personalogical significance of differential quantitative and verbal talent; the development of political reasoning in verbally talented children; humanistic precocity and general intelligence; and evaluation of a program for the enrichment of humanistic talent. (LS)

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Study of Verbally Gifted Youth

Third Annual Report to the Spencer Foundation

1 September 1974 - 1 September 1975

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I. Introduction

The goal of the Study of Verbally Gifted Youth as outlined in the original proposal is to identify and encourage a form of talent not usually recognized by the American educational system. We argued that in an increasingly specialized and technocratic culture it is important to develop means for finding and rewarding young people with a precocious ability to deal with moral, social, and political problems. The problem as we see it is to develop means for the systematic detection of, say, J. S. Mill, Talleyrand, and Thomas Jefferson in early adolescence. Secondary goals include finding means for encouraging this talent, evaluating these enrichment efforts, disseminating our findings to schools, parents, and interested government agencies.

We were interested in forms of intellectual talent in addition to scientific and mathematical ability, and we chose the title "Study of Verbally Gifted Youth" to denote this. We were in fact concerned with humanistic precocity--in the traditional sense of humanism. As noted in Appendix C, Humanism has historically meant a concern with ethics, politics, and social welfare. Only in the last 10 to 20 years has it come to denote a neo-Romantic fascination with subjective inner experience and narcissistic individualism. Because of the unpleasant contemporary connotations of the term humanism, we have retained the title of the Study of Verbally Gifted Youth.

Summarizing the foregoing, our project is concerned with: (1) identifying youngsters who show a precocious concern with and ability to reason about, social, moral, and political problems; (2) developing means for encouraging and facilitating these abilities; (3) evaluating our efforts in this regard; (4) formulating a curriculum package and set of counseling aids that other groups and agencies may use for these purposes; and (5) using our data to reconceptualize the nature of human intelligence.

In three years we have accumulated enough data to begin speaking sensibly about most of these issues. In Section II we will describe our efforts at formulating a conceptual and empirical definition of humanistic precocity. Section III presents an evaluation of our past strategy of identifying humanistic precocity and describes our present strategy. Section IV outlines our efforts at training humanistic talent, while Section V contains an evaluation of our work in this regard. Section VI tells of our counseling and exporting activities. Section VII contains some speculations about what we think we know at this point concerning humanistic talent, and Section VIII outlines our future plans.

II. Defining Humanistic Precocity

Our definition of humanistic talent has evolved through three stages. Initially we had a negative definition--i.e., citing William James' line that algebra is a form of low cunning, we thought humanistic precocity was something other than mathematical and scientific precocity.

What that was exactly, however, we weren't sure. We believed it had to do with the ability to reason incisively and well with complex moral, social, and political issues. As a means of clarifying our definition, we carried out a series of analyses comparing students with high quantitative aptitude and well-developed interests in mathematics and science with students who had high verbal aptitude and less interest in math and science. The personality and temperamental characteristics of mathematically as opposed to verbally oriented students have been rather extensively studied; however, the samples we had available provided a unique opportunity to investigate this issue. A full account of our "math-verbal comparisons" is presented in Appendix A, the major findings of which can be summarized as follows. There are no important personality differences between winners in Professor Julian Stanley's Mathematical Talent Search and winners in our Verbal Talent Search--i.e., between mathematically talented students with active interests in science and verbally talented students. On the other hand, the score defined by SAT-V — SAT-Q had distinct personological correlates that were the same for both groups. High verbal as well as high quantitative scores are associated with maturity, independence, wide interests, and an urbane intellectual style regardless of the students' expressed preference for mathematically or verbally oriented subject matter. These findings are interesting but suggest that differential math-verbal scores are not in themselves relevant to the study of humanistic precocity.

Since humanistic precocity concerns the ability to reason with social and political problems, a more sensible way to investigate this sort of talent would be to do it directly, i.e., to give students problems of that type to reason with. Using a structured interview developed by Professor Joseph Adelson at the University of Michigan--a set of questions that probe how one reasons about the use of law as a means for regulating social conduct--we tested our winners in the 1974 and 1975 samples (N = 165). We tested an additional 25 very bright youngsters located by Roger Webb and Stephen Daurio in 1973 and 1974; these students ranged in age from 8 years, 3 mos., to 12 years, 2 mos. The results of these analyses are presented in Appendix B, and can be summarized as follows. First, the developmental trends in political reasoning previously noted by Adelson were replicated here. Second, brightness gives an advantage in reasoning ability; these very able youngsters **were** about three years ahead of Adelson's sample at all phases in the development of their political reasoning skills. Third, the youngest children tended to evaluate laws in forms of personal criteria (e.g., it is good if it is good for me); they were unable to generalize from the regulation of a specific action to the regulation of classes of behavior; and they were unable to think in terms of the regulation of social conduct in general. Finally, even among our oldest and brightest students there were noticeable differences in reasoning ability.

Taken together the analyses presented in Appendices A and B lead to the following conclusions regarding the nature and identification of humanistic talent. First, it is probably present with equal frequency in populations of scientists and artists, engineers and literary critics, mathematicians and philosophers. Second, humanistic precocity is related to intellectual precocity broadly defined, although the relationship is far from perfect. This means that, third, measures such as SAT-V will have some utility in identifying humanistic precocity, but measures of "g" will have to be supplemented by other, more task-specific selection devices. Fourth, direct assessment of the quality of a child's moral, social, and political reasoning seems to be a promising means of identifying this talent.

III. Selecting Humanistic Precocity

For the first two years a portion of the project was devoted to evaluating the usefulness of measures such as SAT-V as a means for identifying humanistic talent. Our evaluation of this strategy is presented in Appendix C. Briefly, Appendix C notes that students selected on the basis of very high scores for SAT-V tend to be unusually mature and well-adjusted, but that they will vary considerably in humanistic reasoning ability. In addition, and as noted above, in this very high range of intellectual talent the critical determinants of humanistic performance are probably personality and biographical variables.

For these reasons selection procedures for this year's group were organized somewhat differently. Through newspaper and radio advertisements, letters and phone calls to virtually every relevant principal in Baltimore and the five adjacent counties, over 1,000 applications were received for this year's search. These applications were individually screened, and each was given a three part score. Performance on standardized vocabulary tests and academic grades were each given a unit weight of one, and non-academic achievement in the arts, sciences, agriculture, neighborhood organizations, or any other sphere of "real life" activity was given a weight of two. This means in effect that a student could be invited to take part in our program if he or she had good academic potential and an outstanding record of non-academic accomplishment or outstanding academic potential and a good record of non-academic achievement.

From this original list we selected 500 applicants who fit the above description and invited them to take part in a testing session at Johns Hopkins in February, 1975, and at the Wye Institute in rural Eastern Shore Maryland in January, 1975. At the testing the students were given the verbal portion of the Differential Aptitude Test (DAT), a reliable measure of verbal ability, the Chapin Social Insight Test, the Barron-Welsh Art Scale (to assess creative potential), Gough's Adjective Check List (to assess self-image), a biographical inventory, and an accomplishments check list. The most interpretable results from this testing are presented in Table 1. The results, in addition to those presented in Tables 2 and 3, show that these students compare rather favorably with those chosen earlier on the basis of SAT-V scores. Table 4 contains correlations between the DAT and indices of social class. These correlations are closely comparable to those obtained earlier. Table 4 presents the social class correlates of the other selection variables as well. As can be seen from Table 4, only the Differential Aptitude Test is substantially correlated with social class.

We then formulated a rational, a priori regression equation based on our experience and the results of the analyses from the preceding two years. The equation assigned unit weights to scores on the DAT, the Chapin Social Insight Test, the Barron-Welsh Art Scale, and Leadership Accomplishments; it assigned one half of a unit score to Math-Science Accomplishments and one half a unit score to Art-Writing Accomplishments. Students were assigned scores using this regression equation, separately by sex and grade. We then selected the 120 students with the highest scores on this regression equation (58 boys, 62 girls) as our Talent Search winners for 1975. On the basis of the regression equation the winners, relative to other students their age, should be bright, socially acute, creative, with charisma and personal energy; they should think imaginatively and well about social and political problems, and have the drive and social skill necessary to put their ideas into effect.

This revised selection strategy produced a rather different subject sample as Table 5 reveals. At a more obvious level, however, it is interesting to note that as a result of this selection strategy, about 10% of the final sample was Black--and this is the first time that Black students have appeared in our final sample.

Looking now at Table 5, students chosen on the basis of our regression equation seem to resemble politicians. They are extraverted, outgoing, free-wheeling, and only moderately interested in ideas. As a group, they seemed more physically attractive, mature, and better-adjusted than did the students from the first two years. This has costs and benefits, as will be seen in Section V below.

IV. The Summer Enrichment Program - 1975

The project's largest enrichment effort to date was completed in the summer of 1975. Four staff members offered a total of six social science courses and one writing course. The social science course is our major systematic effort at curriculum development. The curriculum was carefully planned in advance, and all three social science instructors followed the same basic format; the differences that emerged in their respective courses were the product of differences in personality rather than course design.

Descriptions of the social science course and the creative writing course follow.

The Social Science Course - 1975

Week 1.

The readings and discussions of the first week introduced the students to the general perspective of the social sciences and served as a framework for subsequent discussions. Homans' The Nature of Social Science was the basic text for this week. Homans particularly emphasized the problem of explanation and the character of the laws and generalizations produced by social sciences. Class discussions compared this approach with classical natural science, logic and common sense, religion, and folklore. This comparison was aided by additional reading assigned to students, which was seven chapters from Howells' book on primitive religions, The Heathens.

The Nature of Social Science is a rather difficult work; its implications appeared to be missed by many students. Most claimed it was boring and repetitious. The Heathens, on the other hand, won general approval. Howells used very interesting examples to demonstrate the function that supernatural beliefs play in helping primitive people make sense of their world.

The lesson of week one was "necessary but not sufficient" in terms of students' understanding of social science. In succeeding weeks it required follow-up that stressed the role of proof and evidence in reaching sound, justifiable conclusions.

Week 2.

The second class focused on human evolution. The intention was to explore the implications of man's biological heritage. Selections from Conrad's The Many Worlds of Man furnished a non-technical introduction to evolution, the biological bases of behavior, and racial variation in man. A more sophisticated summary of evolution, "Man as a Biological Species," by Mayr, supplied details about the types of evidence which have been used to support the theory of evolution. Mayr also proposed probable consequences of evolution for modern living and vice-versa. Although too technical for students with little background in biology, this selection was valuable as a demonstration of how a scientist reasons about events for which convincing proof is missing.

Two factors that interfered with students' understanding of this topic presented a fine opportunity to review concepts from week one. First, the students were more inclined to a Lamarkian (inheritance of acquired characteristics) than a Darwinian theory ("chance" evolution through survival of the fit). Scientific hypothesis testing can be demonstrated by considering the different implications of these theories. Second, at least a few students objected to the evolutionary theory because of its conflicts with religious beliefs. This conflict parallels the first week's discussion of scientific versus religious explanations and permits a comparison of their overlapping and separate functions.

Week 3.

Culture develops with physical evolution, but it is unique in evolutionary history because it presents a conceptual parallel to physical evolution. The third class considered the development of cultures as the human counterpart of instinct.

The readings for this week supplied both general principles and specific examples of cultural variations. The selections taken from Conrad's The Many Worlds of Man stressed the potential value of cultural diversity for social change. Examples of successful adaptations to a variety of environments illustrated the advantages of these differences. Erikson's ethnologies of the Sioux and the Yurok Indians in Childhood and Society supplemented Conrad by describing how cultural practices generate the personalities that in turn sustain the culture. His account also emphasized how a culture may become dysfunctional in relation to a changing physical and social environment.

Students responded enthusiastically to these readings. They seemed particularly impressed by the range of behaviors described. The subtlety of the mechanisms that created these variations appeared to elude many of them, however. They seemed more interested in the authors' descriptions than in their analyses.

Week 4.

The emphasis on humans as a biological species organized into cultural groups was expanded in week four by a consideration of persons as individuals. The readings included representative psychological and sociological theories of personality. Erikson's

"Eight Stages of Man," a relatively understandable and straightforward account of a sophisticated psychological theory, was contrasted with Berger's presentation of role theory in Invitation to Sociology.

With this as background, class discussion centered on the root ideas of personality theory, i.e., the elements a theory should include to be an adequate description and analysis of personality. Each idea--motivation, socialization, self-concept, unconscious, explanation, and psychological health--was defined and discussed using examples from the readings and the experiences of the students.

Students appeared to enjoy discussions of personality even more than cultural anthropology. It may be that they understood the material more readily because of its immediate application to their own experience; perhaps the level of analysis required was less abstract. Finally, the discussion revolved around material not included in the reading, necessitating more direction than usual on the part of the instructor. Many students appeared to be more comfortable and to sense more progress in this relatively structured class situation.

Week 5.

People are rule-following animals; their values are reflected in the patterns of behavior that are culturally inherited. The study of the process of acquiring and developing these patterns of behavior, socialization, was the focus of readings and discussions the fifth week. Conrad's The Many Worlds of Man described ways in which societies transmit and enforce their values, e.g., gossip, ridicule, rewards, and religion. In Invitation to Sociology, Berger supplemented Conrad's account with a detailed discussion of social controls and their ultimate reliance on physical force. Selections from Oscar Lewis' ethnographies of urban poverty in Mexico, Five Families, provided students with an opportunity to apply the lessons of Conrad and Berger to real and contemporary family and cultural settings.

For many, the readings were the source of two significant insights. Almost without exception students were impressed by the stark descriptions of poverty in Five Families. Lewis' volume reads like a novel, and it generated an empathic response in these relatively advantaged students. The situations Lewis described were familiar enough that students were compelled to identify with them but different enough that students were forced to suspend some of their culturally determined prejudices. Second, they readily grasped the notion of social control. Although some questioned its necessity, almost all were able to correctly identify examples in their own experience and in Five Families. For the first time many seemed to become aware of the power of the sociological perspective for making sense of the world.

Week 6.

The theme of Conrad's The Many Worlds of Man is that diversity is among the most valuable of human traits. This leads to a position of cultural relativism. That is, we are all creatures of the institutions we create; the cultural systems of other peoples work for them and must be judged on their own terms. In week six, we compared this proposition to a position of cultural absolutism. That is, each person must develop criteria for evaluating social institutions.

The reading for this week supported a relativistic stance. The class completed The Heathens by Howells and two more selections in Five Families. The criteria for an absolutist position were generated by students' responses to questions such as: "When would it be moral or immoral to intervene in another culture?" Although many students originally voiced support for relativism, they seemed willing to intervene for pragmatic (e.g., economic) or ideological reasons (e.g., political systems or religious beliefs). They generally did not look to the social sciences, e.g., psychology or anthropology, for possible criteria.

Week 7.

Cultural change was the topic of the seventh class. It incorporated lessons from earlier weeks and challenged students to confront the conflict between growth and change on the one hand and stability and order on the other. Students read the final selection from Lewis' Five Families, which portrayed a nouveau riche Mexican family, the Castros, aping American values and customs. Comparing the Castros to previous families, they could trace the transition of Mexico from a rural farming culture towards an urban Americanized society. Additional reading, a chapter from Webster's text, Actions and Actors: Principles of Social Psychology, introduced students to research on leadership. A factually correct, but not too technical account, this chapter provided students with a perspective from which to consider the role of leaders in social change.

Students appeared to appreciate the variety of mechanisms that generate change--e.g., environmental changes, cross-cultural contact, inventions, and social innovations--and they were able to produce many examples of each. Those who read the Webster chapter also demonstrated an increased sensitivity towards the roles that a leader plays in maintaining order or encouraging change. Not all were convinced, however, that an individual can exert significant influence on a group.

Week 8.

For the eighth week the syllabus called for a discussion of ethics and humanism as a basis for moral conduct. No readings were assigned; the object was for the students to consider the meaning of ethics, humanism, and pragmatism, and to reason intelligently about these issues on the basis of the material they had considered in the preceding weeks. The class was divided over the implications of social science for moral behavior. Some saw the course as ethically neutral; others believed that knowledge they had acquired brought with it obligations to consider guidelines for behavior. The course developers were biased toward this latter point of view. Indeed this was one of the functions for the enrichment program: to expose students with leadership potential to a sophisticated humanistic curriculum that they could refer to in forming judgments and taking action in their day to day lives.

The Creative Writing Summer Program - 1975

The instructor for this course was a professional writer who had both experience and interest in helping young writers develop their creative abilities. His objectives for this course (which is being continued through the academic year 1975-1976) and his impressions of the results are summarized briefly below. The lesson plans for the summer session are also outlined below.

Objectives

The purpose of the course, as in the past, was to develop the reading and writing sensitivity of the students through an exploration of various literary forms; the questioning of formally defined categories (e.g., What is poetry? What is prose? Fact? Fiction?); and the questioning of the nature of language. These questions--very important in current literary speculation--were presented in a non-theoretical way and always in relation to concrete examples.

The genres studied and practiced were: 1. Poetry, 2. Fiction (including humor), 3. The New Journalism. The central questions to be raised in relation to these genres were questions of narration: Who is the narrator? What is his/her relation to the "story"? How is the reader's relation dependent and independent of this? For what reasons do we come to trust or mistrust the narrator? Is there any "event" ("story") which is independent of a narrator? (of, at least, an implicit "I" or "we"?). What kinds of narrative strategies are open to the writer?, etc.

As in the past, class time was divided between discussions of the students' writing, discussions of assigned reading, and time to write in class. Explication of technical or theoretical points was related to specific texts or to specific writing assignments. Three anthologies were used, though additional materials were provided as noted below. The anthologies were:

1. The Conscious Reader, edited by Caroline Shrodes, Harry Finestone, and Michael Shugrue. Macmillan, 1974.
2. Naked Poetry, edited by Stephen Berg and Robert Mezey, Bobbs-Merrill, 1969.
3. The Me Nobody Knows, edited by Stephen M. Joseph, Avon Books, 1969.

The First Class

Prior to the meeting of the first class, a piece of journalism (newspaper or magazine article) was distributed to the students. They were asked to classify it as "objective" or "subjective" (or in any way they thought appropriate, using these categories as a guide) and to give reasons for their classification.

In conjunction with the above the students were asked to read "Vietnam Superfiction," by Alain Arias-Misson. The students were asked to consider this piece, using the same categories as guides; to compare it to the article; and to be prepared to articulate their reasons for classifying the two.

These two pieces provided the basis for introducing a preliminary discussion of the questions raised at the beginning of this report.

The article was explored for its use of metaphor, a possible "hidden" narrator, etc. As a classroom demonstration leading to a discussion of rhythm and line-breaks (enjambment) in poetry, the instructor broke the article into lines to show how this procedure can change the impact of a given piece. Some poems were then explored to reveal ways of using enjambment to complicate meaning, to modulate the rhythm of the voice, etc.

The writing in class consisted of an exercise the instructor had found very successful and enjoyable in workshops for both students and teachers in The Maryland Poets-in-the-Schools Program. Each student contributed two words which were written on the board. The object was to use all the words in a single poem. This was a useful way to begin working with words and their associations as sensuous material, as seeing the poem develop from words rather than concepts. It also gave everyone an initial opportunity to practice the use of enjambment and to discuss their reasons for their line-breaks.

Home-writing for the First Class

The students rewrote a newspaper article and projected themselves into the situation using first person narration. Then they took part of the article (or part of another one) and found a poem in it--i.e., broke it into rhythmic lines to see if doing so significantly changed its impact.

Home-reading for the First Class

Foreword through Book Two of Let Us Now Praise Famous Men, by James Agee and Walker Evans and Introduction to The Children of Sanchez, by Oscar Lewis.

Political poems: "For the Union Dead" and "The Mouth of the Hudson," by Robert Lowell; Part II of Howl and "America," by Alan Ginsberg; "Dulce et Decorum Est," by Wilfred Owen.

The Second Class

The Agee and the Lewis pieces were discussed in terms of the narrators and in conjunction with questions raised in the first class. (For example: Which narrator did you get to know better? Which one did you like, respect more? Why? Which one questioned his own role more? Is this questioning important?) A discussion of political poems as well as the students' own writings accounted for the remaining class time.

Home-reading for the Second Class

1. "The Ethics of Living Jim Crow," by Richard Wright.
2. "The Chicago Defender Sends a Man to Little Rock," by Gwendolyn Brooks; "Status Symbol," by Mari Evans; "Black Bourgeoisie," by Leroi Jones (Baraka).
3. "The Slum," by Frank Campbell; "On Broadway," by Tim Engel; "Criminals," by anonymous; "Locked in the Outside," by Nellie Holloway; "Rejoice," by Clorox.
4. "Fifth Avenue Uptown," by James Baldwin; "Letter from Birmingham Jail," By Dr. Martin Luther King, Jr.; "To Mississippi Youth" and "Message to the Grass Roots," by Malcolm X.

The problems the students were to consider with these readings included "setting up" an "event" using poems, autobiography, an essay, a speech; getting an idea of how complex any "event" is; and therefore, how complex a response is necessary.

Home-writing for the Second Class

The students were asked to write a "report" of this "event," to think of what kind of narration was most appropriate: "subjective" or "objective"; a poem, essay, or speech; to think of the perspective of the narrator; and to think of possibly creating a "fictional" narrator--i.e., someone from a different background,

and/or

to write a piece (poem, essay, speech, autobiography) describing their situation and their feelings about it, or create a fictional narrator to do this, or report objectively, in the third person, as a newspaper would. They were then urged to think about why they chose the form they selected.

The Third Class

By this class, the students were becoming more accustomed to the self-critical and objective seminar atmosphere. Discussions became more useful. As a result, from this point until the end of the course, most in-class time was devoted to reading and critically analyzing the works of the individual students. This week's works included the dramatic monologue form: the speaking voice, creating a character, etc.

Home-reading for the Third Class

The Prologue to The Invisible Man, by Ralph Ellison; "My Last Duchess," by Robert Browning; "A Servant to Servants," by Robert Frost; "The Lady's Maid," by Katherine Mansfield; "The Pied Piper" and "Lament" (two poems by the instructor).

Home-writing for the Third Class

The assignment was to write a dramatic monologue in either prose or poetry.

Fourth Class

Again, there was discussion of readings and student writings and a continuing discussion of narrative perspective with an emphasis on ways of using third person narration. Reading in class included Wallace Stevens' "Thirteen Ways of Looking at a Blackbird." Writing in class was of poetry describing an object or animal from a number of perspectives.

Home-reading for the Fourth Class

"The Prison," by Bernard Malamud; "The Rocking-Horse Winner," by D. H. Lawrence (the former being a good example of third person narration which is simultaneously exterior and interior to the character; the latter, an example of an apparently objective third person who nevertheless is implicated in the story).

Home-writing for the Fourth Class

The students were to begin a long short story using third person narration.

Fifth Class

There was discussion of reading and writing (as usual), as well as preliminary discussion of dreams and the function of dreams as a source for contemporary writing. The in-class reading included selected poems using dreams. These came from several sources, including works by other young writers as well as the instructor's work.

Home-reading for the Fifth Class

"Snow-line," by John Berryman; "A Dream of Burial," by James Wright; Text. No. 1 from Samuel Beckett's Texts for Nothing; "The Lost Son," by Theodore Roethke; "What a Proud Dreamhorse,"by e. e. cummings; "The Zoo Keeper," by the instructor.

Home-writing for the Fifth Class

The students were to continue and finish a short story and to write a longer poem or a short, short story using the techniques of dream.

Sixth Class

Class began with discussions of reading and writing, followed by preliminary discussion of humor. Readings in class included short selections from Woody Allen and S. J. Perelman as a way of beginning to see what strikes us as funny and why.

Home-reading for the Sixth Class

"Rhinoceros," (the story) by Ionesco; "Report," by Donald Barthelme; "The Unicorn in the Garden," by Thurber; "Examining Psychic Phenomena," by Woody Allen; "The Expelled," by Beckett; "In Order To," by Kenneth Patchen.

Home-writing for the Sixth Class

The assignment was to write a humorous piece--poem, essay, or story.

The Seventh and Eighth Classes

These classes involved in-class reading of original creative works by the students. Pieces were critically analyzed by members of the class. Homework involved re-working pieces to incorporate critical suggestions.

The Instructor's Overall Impressions

In planning the course, the instructor had expected to give as much time to a close reading of the assigned texts as to the criticism of student writing, maintaining that evaluating the products and techniques of established writers is an important source for a writer--particularly for a beginning writer. But the instructor found the students more skilled and interested in writing than reading. Critical techniques were approached, therefore, primarily through discussion of classmates' work, though if time had permitted, more reading and more discussion of outside texts would have been included. If the course were offered again, however, alternating reading and writing assignments would probably provide a broader and more effective learning experience. The class reading was important--learning the pleasures of re-reading--and can be taught to this age group, given their intelligence and maturity, but it might be tried in some more coherent and systematic way.

One of the most positive aspects of the course was the creation of an atmosphere in which class criticism of the writing could go on in a friendly and mutually respectful atmosphere. At the beginning of the course it was decided that each student would read his or her own work rather than employing any system of anonymity. Negative as well as positive comments were exchanged without "personalities" entering into the process. As the classes went by, openness in this area increased and by the end of the course, most of the students felt that the class was a good place to be and work in, that they could live with the anxiety of sharing their writing with others.

Both the instructor and the students evaluated the course favorably. The instructor's objectives were demanding and technical, the atmosphere was one of a workshop, and the majority of the students were able and willing to work on their writing objectively and professionally. Although writing ability was not uniform, it was evidenced in the writing samples and critical statements that all the students benefitted from the course, especially in the use of line-breaks and rhythm in poetry, the avoidance of cliché, the use of imagery, and the problem of resolution and closure in general (i.e., avoidance of the stock "happy" ending).

Clearly not all the students were gifted writers. Perhaps only half the class could be considered so. But since all showed potential for improvement of technical writing skills--if not for becoming professional writers--it was decided to continue the seminar for all the students this fall on a once-monthly basis. This fall seminar will allow the students to continue working at a level considerably more advanced than that provided by their schools, and will allow them the opportunity for extensive critical reading, which they felt that their school literature courses did not offer.

V. Program Evaluation

Our evaluation takes two forms. On the one hand, and in a relatively limited sense, we must evaluate the effects of our summer program. An evaluation of our earlier enrichment efforts appears in Appendix D. In a more extended sense, we must try to evaluate our total effort in terms of both selection and training. Discussion of these efforts is presented in two selections below.

A. Course Evaluation

An evaluation of the summer enrichment program must proceed along three lines. First, what kinds of differences did this program make in students tested abilities and attitudes? Second, how did students perceive the program--was it satisfying, or stultifying, or challenging? Finally, did the students and the curriculum meet the goals of the staff?

The methodology for this evaluation parallels that of the first two years, reported in Appendix D. Three types of tests were used to measure (a) changes in creative or divergent thinking--The Consequences Test; (b) changes in reasoning ability or convergent thinking--the Concept Mastery Test; (c) changes in global attitudes toward school and college--a semantic differential. Students in all seven classes were tested before and after the summer program. The data include the 88 students for whom there are complete data.

The Consequences Test consists of two forms--one developed by Guilford; the other, by members of our staff (Hogan, Kilkowski, & Viernstein). Five items describe unusual situations for which the student must list possible consequences. For example: What would be the results if people no longer wanted or needed sleep? The test is highly speeded, but the number of different consequences produced varies widely among students and is unrelated to intelligence as measured by IQ. Terman's Concept Mastery Test, on the other hand, is a verbal reasoning scale consisting of vocabulary items and analogies. It is much more difficult than standard IQ or verbal ability tests and is particularly appropriate for highly selected samples. The semantic differential assesses attitudes toward school, Math, English, and college, along dimensions of liking, utility, and accessibility. There are nine scales ranging from 1 to 7 for each concept, with three scales for each dimension, e.g., like-dislike, good-bad, pleasant-unpleasant. Each student makes a total of 36 judgments.

These instruments were all used in the first two years of this project and it is informative to compare the 1975 sample with the earlier groups. Table 6 includes data on the Consequences, Concept Mastery Test, and Semantic Differential. The important thing to remember when reviewing this table is the nature of the selection strategies employed each year. In 1973, an SAT-V cutoff of 570 was used, and in 1974, 500 was the minimum score.

In 1975, multiple criteria were used which included approximately a 90th percentile score on a grade level verbal ability test. The decreasing scores on the Concept Mastery Test reflect these changes in verbal ability requirements. It is significant, however, that there was no corresponding temporal decline in Consequences scores. The stability of group averages for the Consequences indicates that this aspect of humanistic talent has not been affected by changes in selection strategy. Similarly, measured attitudes are constant across all three years, and the implication is the same.

These pre-test scores are all impressively high or positive. The average scores on the Concept Mastery Test ranged from 66 to 43. These may be compared with 60 earned by a sample of air force captains or with the average of 18 found among the most advanced eighth graders in a local junior high school class. Finally, the semantic differential scores correspond to an average rating of approximately 2-1/3 on a scale of 1 to 7 (positive to negative).

Change scores appear comparable across all three samples; the significant difference between the 1973 and 1975 CMT pre-tests does not seem critical given the nature of the results discussed below. Table 7 presents the comparisons of average gain scores for the three enrichment groups, and Table 8 reports the before and after data for 1975 alone.

The levels of relative improvement on the Consequences test is particularly interesting. The Productive Thinking Program (Covington, Crutchfield, Davies, & Olton, 1972) was part of the enrichment package in 1973. It was not used in 1974 and only indirectly involved in 1975. Instructors did make an effort to encourage creative thinking, however. The results clearly indicate that the Productive Thinking Program is effective in boosting divergent thinking scores. Although students improved in divergent thinking in 1975 (see also Table 7), the results were not as strong as in 1973. These data suggest that divergent thinking can be enhanced, and more so by direct, focused training than by sincere but diffuse encouragement.

Scores on the Concept Mastery Test showed consistent improvement all three years. Although the gain for 1975 students is close to being significantly less than for 1974, that gain still represents a significant improvement over 1975 pre-test levels. The facts that students were partially selected on the basis of high verbal ability (on the Differential Aptitude Test), and that their initial CMT scores were quite high increase the difficulty in demonstrating improvement on the CMT. Therefore, the gain of seven points for 1975 lends support to the conclusion that the enrichment program engenders real improvement in developed verbal reasoning skills.

Students' attitudes toward school, Math, English, and college did not significantly change during any of the years of the program--at least not as measured by a semantic differential administered immediately after the program. There are some statistically significant differences in attitude changes between the three enrichment programs but the actual changes have been small, and do not merit much comment or speculation. It is sufficient to say that 1975 students grew more favorable toward school both in comparison to their pre-test scores and in comparison to the direction evidenced in 1973 and 1974.

Until now the 88 students from 1975 have been treated as a homogeneous group. Actually these students formed seven separate classes. There were four different instructors;three taught two sections of social science each and one taught a class in creative writing. It is important to note that there was very little variation in gain scores across instructors or across subjects. This suggests that the positive results are not tied narrowly to a specific curriculum or instructor. Unfortunately, the uniformity of improvement also makes it difficult to determine precisely what factors are enhancing verbal reasoning skills. We can only note some obvious similarities among the courses and instructors over the past three years.

All courses were conducted at a college level. All demanded considerable independence, initiative, and intelligence on the part of the students, and all included students who could reasonably be expected to demonstrate these qualities. All instructors had prior experience teaching--on a college level--and all had very high expectations of their students. Each instructor had adequate time to prepare lessons, to review students' work, and to give them extensive feedback on their performance. Finally, all instructors were seeking advanced degrees, but more importantly they were actively working in the disciplines they were teaching. The writing instructors are both published authors and the social science instructors are each engaged in psychological research. Because these variables are all confounded with one another--and with other less obvious ones--it is impossible to say how necessary or sufficient any one is for producing the observed changes. It might be noted, however, that some of these conditions could reasonably be duplicated in public or private schools, but others are much less easily duplicated. It should be further noted that the Productive Thinking Program, which resulted in significant improvement in divergent thinking, has been successfully used in public school settings and, in our program, was taught by a recent college graduate with no prior teaching experience.

In overall terms then, we would have to judge our Summer Enrichment Program as effective in engendering some of the changes that one would reasonably associate with enrichment of humanistic talent.

B. Selection Evaluation

This year, as in the past, our ultimate criterion for evaluating our program is our own staff judgments about the kinds of students we have recruited to our program. Each year the staff has rated the students in the enrichment program for "humanistic potential"--a complex, global assessment reflecting our judgments about each student's originality, intellectual maturity, and potential for making a contribution to some aspect of humanistic inquiry.

It is in one sense logically circular to attempt to validate one's criterion ratings, nonetheless we attempted to do just that with this year's sample. Table 9 contains the relevant information; two points about this table are important. First, although the three staff members were rating different groups of students, the pattern of correlations across the three raters is quite consistent, suggesting that their ratings are comparable. This is essential, since no additional means are available to assess the reliability of these ratings. Second, the highest correlations in Table 4 are between staff and peer ratings. This not only attests to the reliability of the ratings, but reflects on their validity as well. In the major assessment studies of the 1950's and 1960's, peer ratings proved time and again to be the assessment variable with the greatest predictive validity. Table 9, then, attests to both the validity and reliability of our staff ratings.

Table 10 presents data on our selection process and the nature of humanistic precocity. There are three points about this table that should be noted. First, as would be expected, staff ratings are uncorrelated with the regression equation scores used for selection--because the variance in these scores is severely reduced as a result of the selection process. Second, as a result of the new selection criteria, verbal IQ varied more in this sample than in either of the earlier groups. Consequently, CMT scores again became relevant to students' performance. Third, for this sample the key variables defining humanistic precocity, the characteristics most related to performing well in our program, were CMT scores and self-estimates. We were somewhat surprised to see verbal IQ re-emerge as a relevant variable for our purposes. The correlations between staff ratings and self-estimates, however, reveal that there is more to humanistic precocity than verbal IQ.

Specifically, the self-estimates scores reflect students' self-concepts with regard to the following 10 dimensions: general energy level, good judgment, probability of being a success in life, personally well-organized, persistent, confidence about the future, resourcefulness, leadership potential, religiosity, and ability to adjust to new situations. Further analyses will be necessary to determine whether all of these self-descriptive characteristics are equally relevant to humanistic accomplishment. Generally, however, humanistic precocity seems to be best defined in terms of intelligence and a particular self-concept defined in terms of the variables listed above.

VI. Service Activities

Since the project's inception two objectives have been sought as a means of providing service to the parents, educators, and students interested in the special problems of the verbally and humanistically gifted. The first goal is academic and vocational counseling for students who participate in the Spencer Project; this is an ongoing activity continued during the first three years of the project. The second objective is, broadly speaking, information dissemination--trying to reach the widest audience to effect the greatest improvement in the overall education and training of humanistically gifted youngsters.

A report of our counseling activities involves separating Spencer Project participants into two groups: past participants including Talent Search winners in 1973-1974, and current participants, the 1975 Talent Search contestants. Our primary contact with past participants is through the Student Newsletter (started in December, 1973). During the past year four issues of the Newsletter have offered students a challenging reading list, encouraged participation in college courses and advanced placement programs, brought special activities and programs to the attention of interested readers, and provided a forum for "horizontal" information exchange among youngsters. An example of this last point involves one girl who took part in the Social Sciences Seminar last summer. At her instigation, a group of students from her summer class organized a seminar to discuss the topic "Utopia." Readings included works by Plato, More, Huxley, Orwell, and Skinner. This student-mediated seminar was an overwhelming success; plans are being made to continue the seminars.

For the 1975 Talent Search contestants we were able to take advantage of our experience and background during the first two years in order to offer counseling on a much wider basis. This was the first year in which we were able to invite back for counseling both winners and non-winners from the February testing session. As a result we provided career and educational counseling to approximately 500 students and their parents during three sessions in April, held at the Wye Institute (on Maryland's Eastern Shore) and at Johns Hopkins. The format for each session included an informal presentation followed by questions from parents. A product of these meetings was a brief, informative "Counseling Guide," made available for subsequent distribution.

Written with two goals in mind, the "Counseling Guide" introduces verbally gifted students to vocational, educational, and extracurricular alternatives and encourages students to pursue these alternatives on their own. Briefly stated, it includes a discussion of the Holland Self-Directed Search (furnished to all Talent Search participants), college courses, early college entrance, grade-skipping, in-grade acceleration, advanced placement opportunities, national and state resources for the gifted, and other activities such as the Washington Summer Seminar, the Exploration Scholarship Program, etc.

The "Counseling Guide" represents a beneficial service generated by the Study of Verbally Gifted Youth. Ultimately, however, we prefer to encourage and instigate this kind of activity at the state and local educational levels. This is but one of the many reasons why our project staff was active this past year in disseminating information about the project at numerous professional conferences, workshops, and seminars as well as many less formal meetings and discussions. Perhaps the best way to present this heterogeneous list of "events" is in the following chronological, annotated outline.

1974	1 Oct.	Peter McGinn, Instructor of the 1974 Social Science Seminar, held the first meeting of a similar course for local junior high school students. The course covered the material in shorter classes over 12 weeks rather than eight.
	17 Oct.	First meeting with Mr. James Nelson, Director, Wye Institute, to discuss selection strategy for Wye's 1975 summer program on the Eastern Shore of Maryland, to be held in conjunction with the Study of Verbally Gifted Youth.
	7 Nov.	Meeting with Dr. Hal C. Lyon, Director, Office of the Gifted and Talented, U. S. Office of Education, Washington, D. C.
	7-8 Nov.	Maryland State Conference on Education of the Gifted and Talented. Study of Verbally Gifted Youth participated in a joint project with the other Hopkins' Spencer projects. At this conference selection strategy for the Third Annual Talent Search was announced.
	10 Dec.	Dr. Hogan addressed the Harford County (Maryland) Parent-Teachers Association
	19 Dec.	Counselors from the Montgomery County (Maryland) school system, as well as representatives from two Baltimore City schools, met with the Project Staff to discuss the possibility of initiating a course in their schools similar to our Social Sciences Summer Seminar.

1975	1 Feb.	The Third Annual Talent Search for Verbally Gifted Youth. During the testing session, Dr. Garvey met with parents to discuss the project and to answer questions.
	8 Feb.	Montgomery County (Maryland) Conference on the Gifted and Talented. S. Daurio and P. McGinn, members of the project staff, participated in a panel discussion entitled "Identification of Gifted and Creative Children: The IQ and Beyond." A summary of the first two years' work and the prospect of change for the Third Talent Search was discussed before more than 400 educators, teachers, and parents.
	3 March	Staff led discussion of the Study of Verbally Gifted Youth in educational psychology seminar conducted at the American University, Washington, D. C.
	5 April	Testing of Eastern Shore Talent Search winners at Wye Institute. Conducted counseling session for parents during the testing.
	12 April	Testing of greater Baltimore Talent Search winners at Johns Hopkins. Conducted counseling session for parents during the testing.
	19 April	General counseling session for "non-winners" and parents held at Johns Hopkins (Baltimore area students) and the Wye Institute (Eastern Shore students).
	21 April	Staff led discussion of Study of Verbally Gifted Youth in seminar on education of the gifted, conducted at The Johns Hopkins University.
	16-17 May	Special two-day workshop on the social psychology of prejudice, held at the Wye Institute for 17 Eastern Shore students, aged 14-16.
	3 June	Project Associate M. Viernstein addressed the Prince George's County (Maryland) Parent-Teachers Association.
	30 June	First meeting of student-initiated seminar for Social Sciences Summer students from 1974 took place at Johns Hopkins. Topic for the first seminar: "Utopia."

VII. Summing Up

It might be useful to attempt a provisional summary of what we have accomplished after three years' work studying humanistic precocity. There are perhaps six accomplishments that we can point to as having potential significance. First, we have a definition, in both conceptual and psychometric terms, of humanistic precocity that we are reasonably satisfied with. It is a precocious ability to reason incisively and well with social, moral, and political issues. Second, this ability is not the property of young people with verbal as opposed to quantitative interests. Rather, it seems evenly distributed across the spectrum of academic and professional specialties. Third, humanistic precocity is a function of verbal intelligence, a preference for unstructured, open-ended problems, and a particular self-image that can be summarized as energetic, persistent, confident, and extraverted. Fourth, it is possible to quantify these elements that define humanistic precocity; therefore, it is now possible to select it with better than chance accuracy. Fifth, the curriculum that we have devised for training of humanistic precocity seems to work--at least in the short run. Finally, the parents and students who have come into contact with our program are routinely very grateful for the time, attention, and concern with the problems of the gifted that we have been able to provide them with. The project has created a great deal of good will on the part of concerned parents and pupils in the Baltimore metropolitan area.

We can also begin to outline our plans for the next two years. We are faced by certain manpower constraints (two of our staff are in their last year) that make another large-scale testing and summer program not feasible--the organization and conduct of these large-scale testings and enrichment programs take a staggering amount of time. In addition, we have an enormous amount of data on hand which is as yet unanalyzed. Consequently, the bulk of our energies over the next year will be spent analyzing and reporting on the mass of data we have accumulated over the past three years. In addition, we feel it is important to remain in contact with the most impressive of the students we have identified thus far. This longitudinal follow-up is necessary in order to determine the presence of long-term effects of our earlier efforts. One of our brightest students from last year remarked that it wasn't until six or seven months later that she finally realized what we were trying to accomplish in the summer enrichment program. So some kind of systematic longitudinal follow-up seems advisable and necessary for a full evaluation of the effects of our intervention program.

We intend to continue our writing course on a monthly basis over the next year, in part as a service to the students and in part as a means for developing more fully a writing curriculum for these highly able students. This means in effect that we should have two curricula available for distribution by 1977.

In the fourth year of the project, then, we will be concerned with data analysis and reporting, following up our best students, and elaborating our writing curriculum. In the fifth year, our major effort will be toward producing a synthesis of all our work. This product will be in a book length report of our activities, and this should consume the bulk of our time--there will be endless final analyses to run, data to verify, etc., and we will have a very limited staff at that time. We will continue to follow up our best students, and we will begin making major efforts to publicize our findings and our curricula packages. We have taken a rather low profile concerning our activities in the past because we felt we lacked a sufficient data base to speak authoritatively about the nature and nurture of humanistic talent. We believe that we can now begin to contribute more positive statements.

Table 1

Total Talent Search - Test Results

	N	Chapin Mean	SD	Welsh Mean	SD	DAT Mean	SD
Girls	309	20.1	4.5	21.6	12.2	38.9	7.0
Boys	197	18.7	4.6	19.2	12.1	39.7	5.9
8th grade girls	168	19.5	4.2	22.1	12.4	37.8	6.9
9th grade girls	141	20.8	4.7	20.8	12.0	40.1	6.9
8th grade boys	124	18.1	4.8	18.7	12.0	38.7	6.0
9th grade boys	73	19.7	4.1	20.0	12.1	41.5	5.3
Enrichment group girls	62	22.5	4.1	28.3	12.4	40.8	6.2
Enrichment group boys	58	21.6	4.1	25.2	12.6	41.8	5.4

Table 2

Demographic and Additional Data

	Girls (N=309)		Boys (N=197)		8th Grade Girls (N=168)		9th Grade Girls (N=141)		8th Grade Boys (N=124)		9th Grade Boys (N=73)	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Age	14.1	0.6	14.1	0.6	13.6	0.3	14.6	0.4	13.7	0.4	14.7	0.3
# older siblings	1.1	1.5	1.1	1.5	1.0	1.4	1.2	1.5	0.9	1.3	1.3	1.8
# younger siblings	1.2	1.1	1.2	1.1	1.1	1.1	1.2	1.1	1.1	0.9	1.4	1.3
Father's educ. level[a]	3.4	1.3	3.4	1.3	3.4	1.3	3.4	1.3	3.4	1.3	3.5	1.4
Father's occ. level[b]	3.6	1.0	3.7	1.0	3.7	1.1	3.4	1.0	3.8	1.0	3.6	1.1
Mother's educ. level[a]	2.9	1.1	2.9	1.1	3.1	1.1	2.7	1.1	2.9	1.1	2.9	1.1
Mother's occ. level[b]	3.5	0.8	3.5	0.7	3.4	0.8	3.5	0.9	3.6	0.7	3.3	0.7
Liking for school[c]	2.4	0.6	2.4	0.7	2.4	0.6	2.4	0.6	2.4	0.6	2.3	0.7
1st occ. choice level	4.4	0.7	4.4	0.9	4.5	0.7	4.2	0.7	4.4	0.9	4.4	0.9

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[a] Education was coded on five categories: some high school, high school graduate, some college, college graduate, more than college.

[b] Occupation was coded on five categories: semiskilled and unskilled workers; skilled workers; technicians and owners of petty businesses; semiprofessionals, minor professionals, executives of medium-sized firms, and administrators of small businesses; major professionals and executives of large firms.

[c] Liking for school was coded in four categories: ninexistent, slight, fair, and strong.

Table 3

School Type

	Girls (N=309)	Boys (N=107)
Public Schools	88%	49%
Private Schools	10	18
Parochial Schools	12	33

Table 4

Correlations between selection tests and indices of social class

	Chapin		Barron-Welsh		DAT		Total Accomplishments	
	Girls (N=310)	Boys (N=197)	Girls (N=310)	Boys (N=197)	Girls (N=310)	Boys (N=197)	Girls (N=310)	Boys (N=197)
Father's educ. level	.12*	.06	-.13*	-.02	.24***	.09	.07	.15*
Father's occ. level	.09	.12	-.13*	.02	.13*	.15*	.06	.05
Mother's educ. level	.10	.12	-.08	-.02	.13*	.16*	.08	.05
Mother's occ. level	-.02	.03	-.01	.03	.14	-.17	.07	-.01
Chapin			-.11	.13	.35***	.27***	.02	.14*
Barron-Welsh					-.06	-.11	.06	.00
DAT							-.02	.10

*$p < .05$

**$p < .01$

***$p < .001$

(Note: for mother's occupational level, N = 157 for girls and N = 99 for boys)

Table 5

Comparison of previous enrichment students (Group I) with 1975 enrichment students (Group II)

	Total Groups		Girls		Boys	
	Group I (N=58) Mean	Group II (N=120) Mean	Group I (N=33) Mean	Group II (N=62) Mean	Group I (N=25) Mean	Group II (N=58) Mean
Terman CMT	61.2	40.8***	58.2	37.6***	63.9	44.2***
Chapin	21.4	22.1	22.5	22.6	19.8	21.6
CPI						
Dominance	27.9	31.8***	27.7	31.1**	28.2	32.6***
Capacity for Status	19.7	19.9	19.8	20.7	19.8	18.9
Sociability	24.5	27.2***	24.6	27.1*	24.6	27.2*
Social Presence	35.3	37.6*	35.8	38.2	34.7	37.0
Self-Acceptance	21.4	23.8***	21.4	23.7**	21.4	23.8**
Sense of Well-Being	33.6	32.7	34.0	32.1	33.4	33.3
Responsibility	30.2	28.4*	31.0	28.0**	29.2	28.9
Socialization	37.7	37.0	38.6	37.0	36.5	36.9
Self-Control	25.5	21.5**	25.3	20.6**	26.5	22.5*
Tolerance	22.2	19.9**	23.1	19.9**	21.3	19.9
Good Impression	14.6	14.2	14.4	13.4	15.5	15.2
Communality	24.6	24.9	25.2	25.1	23.7	24.7
Achievement via Conformance	25.3	25.1	25.7	24.9	25.3	25.2
Achievement via Independence	21.6	19.2***	21.6	19.2**	21.7	19.1**
Intellectual Efficiency	40.2	38.6*	40.3	38.8	40.0	38.4
Psychological Mindedness	11.8	11.4	11.2	11.6	12.8	11.2*
Flexibility	13.0	11.9	13.1	12.4	12.5	11.3
Femininity	21.2	19.9*	22.7	22.0	19.0	17.5
Empathy	23.0	24.4*	24.0	25.1	21.7	23.5
Autonomy	21.5	23.3***	18.8	23.5***	18.5	23.0***
Myers-Briggs						
Extraversion	13.9	16.9**	15.8	18.1	11.7	15.6*
Sensing	4.8	6.7*	3.2	6.3**	7.0	7.2
Thinking	7.6	9.5*	4.5	8.6***	11.9	10.5
Judging	10.3	11.6	9.5	10.5	11.3	12.8
Introversion	12.7	9.9*	11.2	8.9	14.4	10.9*
Intuition	19.3	16.4***	20.1	16.6***	18.4	16.2
Feeling	13.6	12.1	16.8	13.5***	9.2	10.5
Perception	16.8	15.3	17.5	16.3	15.7	14.3
Holland SDS						
Realistic	2.0	2.8	1.2	1.7	3.0	4.0
Investigative	10.8	8.9	8.4	7.5	11.7	10.6
Artistic	8.9	8.1	11.2	10.1	6.1	5.9
Social	7.2	8.9**	8.4	10.4**	5.7	7.3*
Enterprising	3.7	5.5***	2.9	4.6**	4.9	6.5
Conventional	1.0	1.6*	0.8	1.3	1.3	2.1
Barron-Welsh	23.0	26.8	24.0	28.5	21.9	25.1
CPI Creativity Equation (Group Average)	14.6	14.8	16.0	17.4	12.1	12.0

$^*p < .05$, $^{**}p < .01$, $^{***}p < .001$ (two-tailed)

Table 6

Comparisons of pre-test scores for three enrichment groups

	1973		1974		1975	
	(N=26)		(N=26)		(N=88)	
	Mean	SD	Mean	SD	Mean	SD
Consequences Test	29.1	9.3	28.1	7.0	29.4	8.5
Concept Mastery Test	66.0	21.2	58.2	19.3	42.9	18.9[a]
Semantic Differential (range of possible scores: positive = 9, negative = 63)						
School	21.3	7.6	20.5	8.3	22.0	8.2
Math	21.7	10.3	22.5	13.7	22.8	12.3
English	23.3	10.9	21.8	11.0	20.2	10.7
College	18.7	6.2	17.6	6.3	17.0	7.2

[a] 1975 < 1973, $p < .001$

Table 7

Comparisons of average gain scores for three enrichment groups

	1973 (N=26)		1974 (N=26)		1975 (N=88)	
	Mean	SD	Mean	SD	Mean	SD
Consequences Test	5.2	7.3	0.7	3.4[a]	2.5	6.4[b]
Concept Mastery Test	10.2	12.1	13.0	14.6	6.9	13.9[c]
Semantic Differential (Note: positive values correspond to decreases in attitude)						
School	2.5	4.2	2.0	6.4	-2.1	5.8[d]
Math	-1.2	4.3	1.5	7.1	0.5	6.8
English	3.0	10.3	0.2	8.8	-0.8	5.7[e]
College	1.7	8.6	2.5	7.8	-0.5	5.2[f]

[a] $1974 < 1973$, $p < .01$

[b] $1975 < 1973$, $p < .1$, $p < .05$ (one-tailed)

[c] $1975 < 1974$, $p < .1$

[d] $1975 < 1973$, $p < .001$, $1975 < 1974$, $p < .01$

[e] $1975 < 1973$, $p < .1$

[f] $1975 < 1974$, $p < .1$

Table 8

Comparison of pre-test and post-test scores

for 1975

Enrichment Group (N = 88)

	Pre-test		Post-test	
	Mean	SD	Mean	SD
Consequences Test	29.4	8.5	32.0	9.9*
Concept Mastery Test	42.9	18.9	49.9	21.3*
Semantic Differential (Range of possible scores: positive = 9, negative = 63)				
School	22.0	8.2	19.8	8.4*
Math	22.8	12.3	23.3	12.1
English	20.2	10.7	19.4	10.3
College	17.0	7.2	16.5	7.7

*p < .001

Table 9

Correlations of staff ratings with variables listed

	Staff Rater #1 (N = 37)	Staff Rater #2 (N = 32)	Staff Rater #3 (N = 31)
Differential Aptitude Test	.12	.47**	.28
Concept Mastery Test	.39*	.51**	.39*
Chapin Social Insight Test	.06	.16	.08
Barron-Welsh Art Scale	.00	-.21	-.15
Age	.14	-.02	.18
Regression Equation used for selection	.04	-.13	.14
Self-Estimates	.37*	.22	.33
Self-Ratings			
Likability	-.09	-.01	-.40*
Academic Talent	.37*	-.10	-.33
Peer Ratings			
Likability	.37*	.41*	.13
Academic Talent	.46**	.58**	.64**

*p < .05

**p < .01

Table 10

Correlations of variables listed with staff ratings, peer ratings, and self-estimates for female and male subjects

			Peer Ratings				Self-Ratings					
	Staff Ratings		Likability		Academic Talent		Likability		Academic Talent		Self-Estimates	
	F	M	F	M	F	M	F	M	F	M	F	M
	(N=57)	(N=48)	(N=38)	(N=57)	(N=60)	(N=57)	(N=38)	(N=34)	(N=36)	(N=33)	(N=62)	(N=59)
Differential Aptitude Test	.25	.19	-.04	.12	-.01	.28*	.16	-.12	.09	-.22	.02	.07
Concept Mastery Test	.45***	.31*	.00	.11	.19	.31*	.06	-.03	.25	.10	.05	.00
Chapin Social Insight Test	.26*	.13	-.01	-.05	.13	-.01	.14	-.10	.34*	.10	-.04	.12
Barron-Welsh Art Scale	-.14	-.09	.21	-.10	.04	-.26*	-.13	-.15	-.41*	.07	-.20	.00
Age	-.09	.29*	.24	.24	-.02	.26*	-.34*	.03	.03	-.12	-.12	.03
Regression Equation used for selection	-.08	.14	-.27*	-.16	-.16	-.20	.18	-.03	-.01	.03	.12	.22
Self-Estimates	.27*	.27*	-.09	-.01	.09	.08	.06	.09	.11	.34*		
Self-Ratings												
Likability	.01	-.15	.13	.17	.28*	.13						
Academic Talent	.05	.11	-.06	.18	.34**	.38**						
Peer Ratings												
Likability	.10	.39**										
Academic Talent	.42**	.54***										

*p <.05

**p <.01

***p <.001

APPENDICES

Appendix A

The personological significance of differential math and verbal talent

by

Mary Cowan Viernstein and Peter McGinn

Investigations of the personological correlates of verbal as contrasted with quantitative talent can be placed in three categories. 1) studies of "differential verbal-quantitative ability" in which persons obtaining higher scores on measures of verbal than quantitative ability have been compared with persons scoring higher on quantitative than verbal measures (e.g., McCarthy, 1953; Altus, 1958a, 1958b; Nelson & Maccoby, 1966); 2) studies comparing individuals with high verbal and unspecified quantitative scores with those with high quantitative but unspecified verbal scores (e.g., Maccoby & Rau, 1962; Bing, 1963); 3) studies comparing persons with different occupational choices, vocational interests, fields of study, or personality traits in terms of verbal and quantitative ability (e.g., Roe, 1953a, 1953b; Gilbert, 1953; Goldman & Hudson, 1973; Hudson, 1966; Nichols, 1964; Elton & Rose, 1967; Johnson, 1965).

Studies in the first two types have used primarily extreme group comparisons, with groups being defined in terms of verbal and quantitative scores at least one standard deviation above the group mean. Results have tended to support the view of distinct "verbal" and "quantitative" types of people, with verbal persons appearing more subjective, imaginative, feminine, independent of authority, introverted, distractible, articulate, and intuitive than quantitative persons (Altus, 1958a, 1958b; Spilka & Kimble, 1958; Block, Levine, & McNemar, 1951; Sanders, Mefferd, & Brown, 1960; Maccoby & Rau, 1962). However, as McCarthy (1975) points out, methodologies have varied so much across studies that it is often difficult to compare results. Moreover, there have been contradictions in the findings (Altus, 1958a, 1958b; Maccoby & Rau, 1962; Ferguson & Maccoby, 1966), making questionable any profile purported to describe "verbal" or "quantitative" persons. The evidence must be regarded as suggestive rather than conclusive.

Indications are clearer in studies of the third type. Differences in verbal and quantitative abilities can be predicted from career choice, field of study, personality measures, and interest inventories. People in engineering, mathematics, and science score higher on quantitative and lower on verbal measures than people in the arts, humanities, or social sciences (Goldman & Hudson, 1973; Hudson, 1966). Persons with a masculine style on personality measures score significantly higher on quantitative and lower on verbal measures than subjects classified as having a feminine style (Altus, 1958a; Spilka & Kimble, 1958; Dublin, Elton, & Berzins, 1969; Elton & Rose, 1967). In one study (Johnson, 1965), Strong Vocational Interest Blank scores which reflected academic achievement were found to be a sensitive predictor of verbal-quantitative difference scores.

The present report investigates the personological correlates of verbal and quantitative talent in a sample of unusually talented adolescent boys. Combinations of the three methods discussed above are used. This work is important to illuminate the role of methodology in findings of personality correlates of differential verbal-quantitative ability and to further explicate the underlying meaning of verbal-quantitative ability profiles. Finally, this study helps investigate the nature of verbal and quantitative personality profiles in talented adolescents.

Method

Sample. The subjects were 12 or 13 year old boys chosen from a larger sample (N = 283) of participants in a Verbal Talent Search--all of whom had scored at or above the 98th percentile on a standardized measure of verbal intelligence--or from a sample (N = 63) of winners in a Mathematical Talent Search, all of whom had scored above the 99th percentile on a standardized measure of quantitative reasoning (Stanley, Keating, & Fox, 1974). Most were from small, upper-middle class families, and over 80% of their parents had at least a college degree. All students completed the Verbal portion of the Scholastic Aptitude Test (SAT-V); the 65 Mathematical Talent Search winners and 117 of the Verbal Talent Search participants also completed the Quantitative section of the SAT (SAT-M) and the Allport-Vernon-Lindzey Study of Values (AVL).

Three groups were formed. The first (N=182) consisted of all those who had completed the SAT-V, the SAT-M and the AVL. The difference between the SAT-V and SAT-M scores was calculated for each subject, and these difference scores were correlated with the AVL.

The second group (N=85) consisted of boys with either high SAT-V and unspecified SAT-M scores (N=20) or high SAT-M and unspecified SAT-V scores (N=65). High SAT-V scores were defined as 550 or above for 8th graders, 500 or above for 7th graders. High SAT-M scores were 640 or higher. The subjects completed a battery of additional tests including: the California Psychological Inventory (CPI; Gough, 1969); the Myers-Briggs Type Indicator (Myers, 1962); Holland's Self-Directed Search (SDS; Holland, 1972); the Terman Concept Mastery Test (CMT; Terman, 1956); the Remote Associates Test (RAT; Mednick & Mednick, 1967); the Barron-Welsh Art Scale (Barron, 1965); and the Chapin Social Insight Test (Gough, 1965). Correlations were computed between the scores on all tests and the SAT-V minus SAT-M difference scores.

The third analysis compared a group of 30 boys who participated in a Mathematics Talent Search and are characterized by very high SAT-M scores (640 or better) with a group of 30 boys who took part in the Verbal Talent Search and are characterized by very high scores on SAT-V (550 or better for 8th graders, 500 or better for 7th graders). The subjects completed all the tests described above. Groups were then compared using t-tests. For the high SAT-M group, correlations were computed between all tests and SAT-V minus SAT-M difference scores. This was not done for the verbally gifted group, since only half of them had taken the SAT-M.

Results

Table 1 summarizes the data for the first group. SAT-V and SAT-M scores for this sample ($\overline{X}$ = 482.1 and 548.0) are about one-half sigma above the average scores for all college-bound juniors and seniors tested with the SAT in 1972-73; thus, these boys are on the whole quite talented for their ages. For purposes of computation, 400 was added to the difference between the SAT-V and SAT-M scores. The mean difference ($\overline{X}$ = 335.6), however, shows that for the entire sample the average difference between SAT-V and SAT-M is less than one sigma. Results for the Study of Values (AVL) indicate that the group as a whole is primarily theoretical, with political, economic, and social values following in order of importance. Such a profile corresponds to that of one who is intellectually curious, academically motivated, rational, practical, and socially responsible.

Insert Table 1 about here

High scorers on the differential ability score SAT-V minus SAT-M plus 400 tend to have equal scores on both the SAT-V and the SAT-M, whereas boys with lower difference scores tend to be more discrepant in their verbal and quantitative abilities. The correlation between the Aesthetic scale of the AVL and the SAT-V minus SAT-M difference score indicates that high scorers (e.g., those with high verbal scores and high quantitative scores, or with low verbal scores and low quantitative scores) value form and harmony, independence and self-sufficiency. The negative correlations with the Economic and Political values suggest that such boys are little interested in the practical affairs, personal power, or influence.

Table 2 presents results for the second group. The average SAT-V and SAT-M scores of 546 and 641 places these boys in the upper 20% of all college-bound high school juniors and seniors taking the SAT in 1972-73. Further indication of the high intelligence of these students is shown in their average Terman Concept Mastery Test score ($\overline{X}$ = 58.8), which is roughly equivalent to the score obtained by an average college graduate, as reported in the Terman Test Manual.

Correlations between the SAT-V minus SAT-M difference scores with other test scores reveal variations within this group. Most boys in this group have relatively high SAT-M scores. Consequently, high scorers on the SAT-V minus SAT-M plus 400 difference scores tend to be high on both verbal and mathematical ability while boys with lower difference scores tend to be less talented verbally. Boys who tend to be talented verbally as well as quantitatively score higher on the CMT than boys with higher difference scores, a result which is not surprising since there is a strong positive correlation between SAT-V and the CMT. Correlations with the RAT and Barron-Welsh Art Scale, both measures of potential creativity, suggest that boys with larger difference scores form potentially creative associations, and prefer designs that are asymmetrical and complex over designs that are organized and simple. AVL results for this group parallel those obtained with the larger group--the boys with high verbal relative to their quantitative abilities are more

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Insert Table 2 about here
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interested in form and harmony than in practical pursuits or personal power. From the Myers-Briggs Type Indicator and CPI results, such boys appear more intellectually oriented, have a wider range of interests, and have a greater potential for academic achievement.

Results of the third analysis, comparison of high SAT-V scorers self-selected for a Verbal Talent Search with high SAT-M scorers self-selected for a Mathematics Talent Search, are given in Table 3. With

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Insert Table 3 about here
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four exceptions, there are no differences in the two groups. The groups differ in terms of SAT-V and SAT-M, but of course these differences are artifacts of the selection process. They also differ with regard to the Terman Concept Mastery Test, a result which is again not surprising due to the strong positive correlation between the SAT-V and the Terman. The difference on the Barron-Welsh Art Scale suggests that the young mathematicians prefer designs that are organized, symmetrical, and simple; the verbal boys on the other hand prefer designs that are unfinished, asymmetrical, and complex. The pattern of the remaining test scores for both the verbal and math groups matches that of the 85 boys described above, and reported in Table 2. Thus boys in both groups are bright, socially perceptive, introverted, theoretically oriented, and potentially creative. Correlations of SAT-V - SAT-M differentials with test scores for boys in the math group once again parallel those obtained for the larger, mixed group of 85 boys.

Discussion

The subjects of this study were self-selected for participation in either a Verbal or Mathematical Talent Search. They are exceptionally bright and come from primarily upper-middle class homes. Thus, the results have limited generality. Nonetheless, the findings may yield clues in the search for stylistic variations in human intelligence.

Four points are implicit in the findings of this study. First, a comparison of groups formed on the basis of tested abilities plus demonstrated interest shows no differences in the modal personalities of the verbal and quantitative groups, even though an array of the most powerful and best developed assessment devices currently available was used. This suggests that in comparisons of verbally and quantitatively talented adolescents, the groups will be primarily distinguished by their interests.

Second, there seems to be a stable set of personality variables associated with differences in verbal and quantitative abilities, as defined by the verbal minus math difference scores.

Third, boys who are talented in both verbal and quantitative areas seem to show the most intellectual and academic promise. They appear intellectually curious and independent, and potentially creative.

Fourth, the kinds of math-verbal differences observed depend in part on the methodology of the study. Comparison of groups with differential math-verbal abilities and interests yields no differences in personality profiles, whereas within-group studies result in significant correlations of math-verbal difference scores with personality variables. Use of math-verbal difference scores may be of questionable value, since the relative strength of verbal or quantitative talent is obscured in the calculation. After all, there are many pairs of verbal and math scores which will yield a given verbal minus math difference score. Math-verbal differentials seem most useful in defining membership for a four-fold typology of verbal-quantitative abilities: high verbal-high quantitative, low verbal-high quantitative, high verbal-low quantitative, and low verbal-low quantitative.

These results seem to indicate that differential math-verbal scores are irrelevant to a sciences-humanities distinction. Math-verbal differences are reliably associated with certain personality styles, but these styles probably occur with about equal frequency in all disciplines. Vocations seem determined by personal predilections that are independent of the variables described here. Thus the two-culture, sciences versus humanities distinction may, after all, be irrelevant with respect to the intellectual and personality characteristics of the individuals involved in these enterprises.

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Table 1

Correlations of verbal-quantitative difference scores with variables listed (N = 185 boys)

	Mean	SD	Correlations with SAT-V - SAT-M + 400
SAT-V	482.1	100.0	.31***
SAT-M	548.0	127.9	-.59***
AVL			
Theoretical	47.1	7.7	-.08
Economic	41.3	7.6	-.18*
Aesthetic	35.4	8.1	.22**
Social	40.1	7.7	.06
Political	42.7	6.8	-.17*
Religious	33.4	10.2	.07
SAT-V - SAT-M + 400	335.6	119.6	

*$p < .05$

**$p < .01$

***$p < .001$

Table 2

Correlations of verbal-quantitative difference scores with variables listed (N = 85 boys)

	Mean	SD	Correlations with SAT-V - SAT-M + 400
SAT-V	546.4	90.7	.78***
SAT-M	640.6	79.6	-.65***
Terman CMT	58.8	20.8(N=83)	.50***
RAT	14.4	4.7(N=41)	.32*
Barron-Welsh Art Scale	19.3	12.7(N=81)	.34**
Chapin Social Insight Test	20.4	4.6(N=40)	.26
Study of Values (AVL)			
Theoretical	50.1	6.7	.01
Economic	42.2	8.1	-.25*
Aesthetic	33.9	8.0	.36***
Social	38.8	7.7	.07
Political	44.2	6.6	-.27*
Religious	30.9	11.3	.03
SAT-V - SAT-M + 400	305.1	121.1	
Myers-Briggs Type Indicator (N=41)			
Extraversion	10.5	5.0	-.10
Sensation	7.7	6.0	-.39*
Thinking	12.3	6.1	-.14
Judging	12.8	6.0	.01
Introversion	15.7	5.7	.01
Intuition	16.3	5.2	.26
Feeling	8.2	6.5	.14
Perception	13.6	6.9	-.05
California Psychological Inventory			
Dominance	28.3	6.7	-.01
Capacity for Status	18.0	3.7	.20
Sociability	22.7	5.3	.11
Social Presence	35.0	6.3	-.06
Self-Acceptance	20.4	3.7	.03
Sense of Well-Being	32.6	5.1	.14
Responsibility	29.5	4.7	.25*
Socialization	37.3	5.2	.18
Self-Control	25.4	7.4	.12
Tolerance	20.5	5.2	.27*
Good Impression	14.0	5.2	.07
Communality	24.6	2.0	-.06
Achievement via Conformance	24.8	3.9	.09
Achievement via Independence	20.1	4.0	.30**
Intellectual Efficiency	38.1	5.0	.37***
Psychological Mindedness	11.8	2.9	.17
Flexibility	12.4	4.0	.11
Femininity	17.7	3.6	.19
Empathy	20.7	4.2	.04
Autonomy	21.4	3.2	.05

Table 2 (continued)

Holland Codes (Self Directed Search)	%
Realistic (R)	11
Investigative (I)	63
Artistic (A)	10
Social (S)	4
Enterprising (E)	3
Conventional (C)	8

*$p < .05$

**$p < .01$

***$p < .001$

Table 3

Comparison of verbally talented with quantitatively talented boys (N = 60)

	Verbal Group (N=30)		Math Group (N=30)		Correlation with SAT-V - SAT-M + 400 for Math group (N=30)
	Mean	SD	Mean	SD	
SAT-V	584.7	46.5	507.7***	99.4	.90***
SAT-M	544.3	74.3 (N=14)	686.0***	50.9	.01
Terman CMT	70.3	18.5	53.4***	19.4	.62***
RAT	14.9	4.1	13.5	5.2 (N=21)	.34
Barron-Welsh	21.3	12.5	14.6*	10.5 (N=29)	.52**
Chapin	20.8	5.1	19.4	3.5 (N=20)	.35
AVL		(N=13)			
Theoretical	49.1	5.7	52.0	7.8	.17
Economic	42.7	8.1	42.3	7.4	-.33
Aesthetic	34.9	7.9	32.3	6.5	.48**
Social	40.8	8.2	37.0	8.0	-.14
Political	42.5	6.7	46.6	6.4	-.15
Religious	30.0	10.7	29.8	12.3	.00
SAT-V - SAT-M + 400	460.7	65.1 (N=14)	217.3	88.9	
Myers-Briggs				(N=21)	
Extraversion	10.2	5.5	10.6	6.0	-.26
Sensation	7.1	6.7	9.2	6.9	-.48**
Thinking	11.8	5.8	13.1	6.4	-.11
Judging	12.4	7.0	12.3	6.1	-.10
Introversion	16.1	6.1	16.4	6.6	.27
Intuition	17.8	5.4	15.6	5.4	.37*
Feeling	9.5	6.4	7.4	6.6	.06
Perception	15.1	7.4	14.4	6.8	.03
CPI					
Dominance	29.1	10.2	28.0	6.9	.06
Capacity for Status	18.7	3.6	17.8*	3.9	.44*
Sociability	23.3	5.0	22.6	4.8	.35
Social Presence	34.0	6.1	35.2	6.0	.31
Self-Acceptance	20.7	4.1	20.2	3.1	.26
Sense of Well-Being	31.9	5.1	32.0	5.7	.26
Responsibility	29.3	5.2	28.3	4.8	.36*
Socialization	36.7	5.7	36.3	5.6	.24
Self-Control	24.8	8.5	24.8	7.8	.15
Tolerance	21.1	4.5	19.6	5.6	.46**
Good Impression	13.1	6.0	13.8	5.3	.30
Communality	24.1	2.7	24.4	2.3	-.12
Achievement via Conformance	24.6	4.5	24.2	4.0	.32
Achievement via Independence	20.4	3.8	19.7	4.2	.46**

Table 3 (continued)

	Verbal Group		Math Group		Correlation with
	Mean	SD	Mean	SD	SAT-V - SAT-M + 400
CPI (continued)					
Intellectual Efficiency	38.4	4.8	37.2	5.4	.58***
Psychological Mindedness	11.9	2.8	11.9	3.0	.39*
Flexibility	12.6	3.6	12.5	4.2	.16
Femininity	19.0	3.8	17.1	3.8	.21
Empathy	21.0	4.0	20.7	3.4	.40*
Autonomy	20.7	2.9	21.7	3.0	.18
Holland Codes	%		%		
R	3		10		
I	71		58		
A	16		10		
S	10		3		
E	--		3		
C	--		16		

*$p < .05$

**$p < .01$

***$p < .001$

Appendix B

The development of political reasoning in verbally talented children

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Statement of the Problem

Efforts to identify and characterize young people with humanistic talent require consideration of the general topic of reasoning ability. How well can verbally gifted youngsters respond to complex social problems involving issues of social policy? Does verbal precocity imply precocious reasoning ability? What are the implications of this inquiry for selecting humanistic talent among adolescents? This paper (1) compares gifted children with bright and average children in terms of a specific political dilemma, (2) examines the relationship of political maturity with age in a verbally gifted sample, and (3) attempts to articulate a more intellectually satisfying conceptualization of the transition from concrete to abstract modes of thought.

The paper builds on three considerations from earlier research. First, in a very important study, Adelson, et al. (1969), interviewed 80 average and 40 bright middle-class white children ranging in age from 11 to 18 using a hypothetical legal problem: how to regulate smoking once it is determined to be a public health hazard. Adelson tested for IQ differences, yet none of a significant order was found. However, in studies of intellectual precocity and Piagetian operations

(Keating, 1975; Webb, 1974; Daurio & Webb, 1975), intelligence did confer an advantage in terms of precocious **acquisition of formal** operations. To resolve these apparent contradictions, this study compares very bright (IQ > 160) children with bright and average children based on responses to Adelson's "smoking problem."

Second, Adelson reported significant changes in adolescents' view of the law occurring between 13 and 15 years of age. After age 15, children were more apt to (a) discuss law in abstract rather than concrete terms, (b) view law less as restrictive and more as beneficial, (c) consider amendments as a solution to the legislative dilemma, and (d) shift from an absolutist to a functional view of law. The present study replicates these findings using a very talented sample.

Third, in the literature of developmental psychology from Werner and Piaget to the present, a single developmental theme is reported continuously. The notion is that mentation evolves along a dimension characterized at the immature end as concrete, and at the mature end as abstract. The terminology changes from writer to writer but the concrete-abstract distinction is latent in virtually all discussions of cognitive development. Despite the robustness and apparent utility of this dimension, it has two problematical features. On the one hand it carries a great deal of Platonic metaphysical baggage--i.e., those who can think "abstractly" are presumed to perceive the world of ideal forms that lies behind the dross of reality, on which those who think "concretely" seem to be fixated. On the other hand, the concrete-abstract distinction is simply too broad and imprecise to be useful; for instance, Adelson reported coding as abstract, "Any evidence of a generalizing or a synthesizing tendency, however diffuse or thinly detailed" (p. 328). In contrast, this paper attempts to refine the abstract-concrete dimension.

Method

Subjects. Thirty-eight white, middle-class, and very bright children, ranging in age from 8:3 (8 years, 3 months) to 14:4 were studied ($\overline{X}$ = 10:4; SD = 2:0). Twenty-five younger students (8:3 - 12:2) with IQ scores above 160 were located through a program operated by the Anne Arundel County, Maryland, school system. IQ's were determined by the Slosson Intelligence Test which correlates above .9 with the Stanford-Binet (Slosson, 1961). Seven girls and 18 boys were included in this sample.

Thirteen older students ranging in age from 12:7 to 14:4 were selected from the 1974 Spencer Verbal Talent Search winners. Seven boys and six girls in this group scored from 490 through 670 on the verbal portion of the Scholastic Aptitude Test; the mean SAT-V score for these subjects was 558. There were no significant sex differences in either group; boys and girls consequently were combined for the subsequent analyses.

Procedure. Children were tested individually in their homes during a single five week period. Data were obtained through an interview which offered the following dilemma adopted from Adelson. Interviews were tape recorded and later transcribed.

> As you probably know, many people including most scientists who have studied the problem believe that cigarette smoking is bad for your health. Let's imagine that the legislature in a particular state is considering the possibility of outlawing smoking altogether. The majority of the legislature feels that cigarette smoking is undesirable because of the effects on health. The question they asked themselves was what, if anything, the government ought to do about it. Should the government forbid smoking or not? Why?
>
> Now here's what happened. A majority of the legislature voted for a law to forbid smoking with a fine for those caught selling or smoking cigarettes. But the law didn't seem to work. Cigarettes were smuggled into the state and people smoked secretly. A majority of the legislature still believed in forbidding smoking, and the problem they had was how to enforce the law. What do you think they should do in this case?
>
> Two different points of view emerged in the discussions of the legislature. Some said that a law that didn't work was no good and ought to be voted out. Others felt that the law should be made to work and thought there should be even heavier fines to make the law work. What arguments would favor keeping the law? What arguments would favor repealing the law? Which solution do you prefer?

The protocols were scored for the following nine dimensions: a global "abstract"-"concrete" rating; "beneficial"-"restrictive" views of the law; "amendment"-"no amendment" solution; "paternalism"-"civil libertarianism"; government's response to violations of the law: "revise or repeal"-"enforce more strongly"; "pragmatic versus absolutist view of the law"; "impersonal"-"personal" consideration of the issue; "general"-"particular" perspective; and "metaphorical"-"literal." The first six dimensions are adopted from Adelson's study; together with two additional dimensions--"Draconian tendencies" and "competent reasoning"--scored on a four point scale, they form the basis of comparison between Adelson's sample and our verbally gifted youngsters. The last three dimensions represent a more detailed analysis of the global "abstract"-"concrete" distinction and will be reported in the next section.

Results

Reliability. Protocols were scored by three raters; intercorrelations between raters for 11 scoring categories are reported in Table 1. Subjects' scores were the average of these three ratings. The reliability of these ratings, estimated by means of the Spearman-Brown formula, ranged from .76 to .94, values that are quite respectable.

Insert Table 1 about here

Comparison of Adelson's sample with verbally gifted children. Adelson reported that significant changes in adolescents' view of law occur roughly between ages 13 and 15. However, Table 2 suggests changes on at least four dimensions occurring between the ages of 9 and 10½. Younger children in the gifted sample (e.g., below 10½):

Insert Table 2 about here

(a) were less likely to generalize beyond the specific problem or to attempt to put the problem in a larger context; (b) viewed law as restrictive, that is, as restraining man's hostile impulses; (c) were paternalistic rather than civil libertarian; and (d) were less likely to take a pragmatic view of the law; they evaluated laws without regard for their negative social consequences.

Table 3 testifies to the stability of Adelson's earlier findings. Age is correlated significantly with the following five dimensions:

Insert Table 3 about here
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(1) progression from concrete to abstract reasoning ability globally defined; (2) a beneficial rather than restrictive view of law; (3) the ability to generate an amendment solution to the legislative dilemma; (4) a civil libertarianism as opposed to a paternalistic view of government; and (5) the ability to reason by taking into account both sides of a difficult issue.

The Concrete-Abstract Distinction

A careful review of our protocols suggested that at least three themes are confounded in the globally defined concrete-abstract distinction. In the first case there seemed to be a dimension defined at one end by a tendency to personalize problems--to justify responses in terms of appeals to one's own likes and dislikes, or in terms of the habits and preferences of one's family and friends. Over time this tendency appears to give way to the ability to think impersonally, to justify responses in terms broader rather than personal preference.

The second theme confounded by the concrete-abstract dimension can be described by the bi-polar adjectives "particular"-"general." Particularistic responses focus exclusively on the problem at hand--here this means the regulation of smoking in this particular case. Responses classified as "general" deal with the particular case as an instance of a more general problem--here this means the regulation of smoking as a particular example of the regulation of a class of potentially self-abusive chemicals.

The third theme obscured by the concrete-abstract distinction is the polarity defined by the terms "literal" and "metaphorical." In the present case literal-mindedness referred to discussions that were confined to the problem as stated. Those responses that saw the problem as one instance of the use of law to regulate social conduct in general were judged to be metaphorical.

Table 1 provides evidence that the smoking dilemma protocols can be reliably scored for these three themes of personal-impersonal, particular-general, and literal-metaphorical. The average correlation across all three items and raters was .70. This value could have been improved had there been any discussion among the raters to "calibrate" their ratings.

The next question concerns the degree to which these three themes are related to the concrete-abstract dimension. Table 4 indicates that these themes are more highly correlated with the rated concrete-abstractness of the protocols than they are with one another. The multiple r of these three variables with concrete-abstract will be substantial. Consequently, these data support the notion that it is important to distinguish at least three separate themes that are ordinarily confounded under the concrete-abstract continuum, themes that provide non-redundant information about cognitive style.

Insert Table 4 about here

The final question concerns the developmental status of these dimensions. Table 3 provides information on this point. Concerning the personal-impersonal dimension, in this sample of unusually bright youngsters almost all of them gave impersonal responses, thereby rendering a significant correlation mathematically impossible to achieve. The particular-general dimension had a less truncated endorsement frequency and the correlation of .63 strongly suggests that it is related to age. There were, once again, relatively few metaphorical responses. Consequently, the correlation of age with the literal-metaphorical dimension is attenuated, but significant nonetheless. It seems safe to conclude that these three dimensions are all developmental variables.

Finally, and perhaps most gratifyingly, these three components of the concrete-abstract dimension form a perfect Guttman scale; that is, in no case does a child who gives personalized responses also give general responses. Similarly, no student whose responses are characterized as particularistic was capable of a metaphorical reply as well.

Discussion

This replication of Adelson's findings with our younger but intellectually precocious children suggests four points. First, replication of the pattern of responses on the various dimensions strongly suggests that as political reasoning ability matures it increasingly takes into account the complex dialectical nature of social issues and increasingly regards law as beneficial, as an instrument for promoting social welfare. Moreover, maturity of political reasoning is congruent with the realization that certain "real world" problems are in principle intractable; therefore, resolution of complex issues will undoubtedly involve compromise or amendment--witness the legacy inherent in the Constitution through the foresight of its authors.

Second, replication of Adelson's findings with a younger though more intellectually precocious sample is consistent with other research reported in the field of intellectual precocity and cognitive development.

That is, unusual verbal talent seems to confer an advantage in reasoning about complex political problems. However, two qualifications are necessary. First, for the gifted sample there was little variation across age in terms of how the government ought to respond to violations of the no-smoking law; the overwhelming majority of children suggested increased enforcement of the law. Second, nothing differentiated our very bright sample as to the severity with which the government ought to enforce this law; 13-year-olds were just as firm as 9-year-olds in specifying draconian measures be applied to malefactors. These results suggest that very bright 8- to 14-year-olds may be capable of talking about complex social problems at a high level of sophistication, but their suggestions for dealing with these problems in reality may be no more mature than those of less gifted age mates. Thus age confers something above and beyond IQ to the maturation of social reasoning.

Third, even among the oldest and brightest students there were notable differences in reasoning ability. Therefore, a more precise formulation of the relationship between intellectual precocity and political reasoning ability suggests only that on the average verbally gifted children will demonstrate more mature responses to complex social problems than less talented peers.

Finally, that the three components of the concrete-abstract dimension form a Guttman scale--the ability to think impersonally is one requirement for the appearance of generalized thought, which in turn seems necessary for metaphorical thought--implies the three forms of thinking distinguished here seem to form a tight hierarchical, age-related structure. Further research will be necessary to determine the correct age parameters of these levels of thought. In the meantime, however, they seem to warrant serious attention as a more discrete and differentiated way of conceptualizing those phenomena normally seen as manifestations of the transition from concrete to abstract modes of thought.

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Table 1

Interrater correlations among three raters for 11 categories

Dimension	Rater #1 - Rater #2	Rater #1 - Rater #3	Rater #2 - Rater #3
Concrete-abstract[b]	.64	.85	.55
Beneficial-restrictive view of law[b]	.54	.61	.42
Amendment or compromise[b]	.60	.72	.73
Paternalism-civil libertarianism[a]	.85	.94	.90
Government's response to violations of the law[c]	.70	.73	.88
Draconian tendencies[c]	.81	.82	.89
Competent reasoning[a]	.57	.69	.70
Pragmatism[c]	.60	.68	.89
Personal-impersonal[a]	.65	.93	.52
Particular-general[a]	.46	.57	.69
Literal-metaphorical[a]	--*	.81	--*

[a] N = 38

[b] N = 37

[c] N = 36

* Rater (2) found no incidence of metaphorical reasoning among any of the 38 subjects; therefore, no correlation coefficient may be reported.

Table 2

Breakdown of responses by age for eight dimensions

Dimensions		Age	
	9	10½	13
Abstract	.30	50	.71
Concrete	.70	.50	.28
Beneficial	.10	.35	.78
Restrictive	.90	.64	.21
Amendment	.20	.07	.57
No Amendment	.80	.92	.42
Paternalism	.90	.57	.50
Civil Libertarianism	.10	.42	.50
Revise or Repeal	.30	.35	.28
Enforce the Law	.70	.64	.71
Draconian Tendencies[b]	2.9	2.9	2.4
Competent Reasoning[c]	1.9	1.7	2.9
Pragmatism	.20	.64	.42
Absolutism	.80	.35	.57

Note: [a] Ages are rounded to 9, 10½, and 13 years; N = 10, 14, and 14, respectively.

[b] Scores on this variable ranged from 1 to 4. Coding was as follows: 1 = repeal or revise the law, 2 = education, compromise or persuasion, 3 = any force or coersion by any means, e.g., increase of taxes, 4 = develop special police, increase surveillance, etc.

[c] This variable was also scored from 1 to 4. The highest rating was coded for arguments that discussed both sides of the issue, followed logically, and reflected humaneness (i.e., a realization that some people are addicted and cannot help themselves). 1 reflected irrelevant arguments or appeals made to empty slogans.

Table 3

Correlations between age and 11 variables listed (N = 38)

Abstract-concrete	.41[b]
Beneficial-restrictive	.50[a]
Amendment-solution	.37[c]
Paternalism versus civil liberty	-.32[d]
Government's response to violations of smoking law	NS
Draconian tendencies	NS
Competent reasoning	.56[a]
Pragmatism	NS
Impersonal-personal	NS
General-particular	.63[a]
Metaphorical-literal	.35[d]

[a] $p < .001$

[b] $p < .01$

[c] $p < .02$

[d] $p < .05$

Table 4

Correlation matrix for 11 variables listed (N=38)

	Abstract Concrete (1)	Beneficial Restrictive (2)	Amendment No Amendment (3)	Paternalism Civil Libertarianism (4)	Revise or Repeal Enforce the Law (5)	Draconian Tendencies (6)	Competent Reasoning (7)	Pragmatism Absolutism (8)	Impersonal Personal (9)	General Particular (10)	Metaphorical Literal (11)
(1)		$.43^b$	$.37^c$	$-.40^c$		$-.27^e$	$.41^b$	$.32^d$	$.63^a$	$.42^b$	$.28^e$
(2)			$.36^d$	$-.41^b$			$.44^b$	$.36^c$	$.30^e$	$.41^b$	$.33^d$
(3)				$-.35^d$		$-.32^d$	$.68^a$		$.38^c$	$.69^a$	$.46^b$
(4)					$-.42^b$	$.29^e$	$-.47^b$	$-.41^b$	$-.33^d$		
(5)						$.76^a$	$-.28^e$	$-.64^a$			
(6)							$-.37^c$	$-.43^b$			$-.26^e$
(7)								$.30^e$	$.40^b$	$.51^a$	$.35^d$
(8)											
(9)										$.41^b$	
(10)											$.43^b$

[a] $p < .001$, [b] $p < .01$, [c] $p < .02$, [d] $p < .05$, [e] $p < .10$

Appendix C

Humanistic precocity and general intelligence: Terman revisited[1]

by

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Terman's pioneering study of giftedness (1925-1959) provided a valuable portrait of the correlates and consequences of intellectual precocity and made a lasting contribution to the study of individual differences. In a well-known essay entitled "The two cultures and the scientific revolution," C. P. Snow presents a cogent argument for the necessity of distinguishing scientific from literary intelligence. It seemed to us, however, that there are at least three distinguishable cultures in the intellectual community: the scientific, exemplified in recent times by persons such as Rutherford, Einstein, and Bohr; the literary, symbolized for example by Camus, Elliot, and Mann; and the humanistic, personified by Freud, Mill, and Durkheim. It further occurred to us that these distinctions might point the way toward revising and extending Terman's original findings concerning a globally defined concept of intelligence. For the past three years Professor Julian Stanley at Johns Hopkins has been studying the nature of scientific and mathematical precocity (Stanley, 1973; Stanley, Keating, & Fox, 1974). The authors, on the other hand, have been concerned with developing means to identify humanistic talent in early adolescence.

The term "humanistic" has fallen on hard times; it has come to denote a viewpoint that emphasizes the primacy of emotion over thought, self-exploration over social problem solving, and a narcissistic search for self-perfection over working for the betterment of mankind (e.g., Laing, 1967; Reich, 1970; Roszak, 1968; Schutz, 1973). This is a gross perversion of the meaning of humanistic inquiry. Traditionally, humanism has meant a concern with ethics and politics, with social philosophy, with the nature of a just society, and with an analysis of the social, economic, and psychological impediments to human welfare. Broadly speaking, humanism refers to any inquiry that takes the well being and happiness of mankind in this life as its primary focus. In twentieth-century philosophy humanism further emphasizes reason, science, and social engineering as means for solving human problems. The Positivism of Comte, the Pragmatism of James, and the Utilitarianism of Bentham and Mill exemplify this meaning of humanism. Ideally, then, a study of humanistic precocity should permit the identification of Comte, James, Bentham, Mill, Hume, Piaget, Thomas More, and Durkheim as school children.

Stanley (1973) has been able to locate scientifically and mathematically precocious youngsters by using measures of high level quantitative aptitude. Following his lead, we have spent two years trying to identify humanistic precocity by using measures of high level verbal aptitude. The remainder of this paper describes the results and shortcomings of this selection strategy.

Method

Sample. The subjects were chosen from a larger sample (N = 659) of participants in a "Verbal Talent Search"--12 or 13-year-olds who had scored at or above the 98th percentile on a standardized measure of verbal achievement. All 659 subjects completed the Verbal portion of the Scholastic Aptitude Test (SAT-V), a biographical inventory adapted from Schaefer (1970), and a background questionnaire listing the occupation and education of their parents, as well as their own vocational aspirations.

Students earning the highest SAT-V scores (N = 130; $\overline{X}$ = 595) were invited to return for further testing and to participate in a summer enrichment program. In all, 58 students took part in the entire program (10 of these students were originally identified as high SAT-V scorers in Stanley's "Mathematical Talent Search" (N = 778)). These youngsters are very bright; in verbal ability they represent perhaps the top half of one percent of the 12-and 13-year-olds in the Baltimore-Washington metropolitan area. They formed our initial "humanistically gifted sample." They completed an extensive battery of additional tests including: the California Psychological Inventory (Gough, 1969); the Myers-Briggs Type Indicator (Myers, 1962); Holland's Self-Directed Search (Holland, 1972); the Terman Concept Mastery Test (Terman, 1956); the Remote Associates Test (Mednick & Mednick, 1967); the Barron-Welsh Art Scale (Barron, 1965); and the Chapin Social Insight Test (Gough, 1965). Personality types of children and parents were classified by applying Holland's classification (Holland et al., 1972) and Viernstein's extension of the classification (Viernstein, 1972) to the occupational aspirations of the children and to the occupations of their parents. The congruency of the child's and parents' personalities, defined by Holland's typology (Holland, 1973), was then assessed using the system described by Viernstein and Hogan (in press), where scores range from 1 (lowest) to 4 (highest).

The final 58 students completed a seven week college level course at Johns Hopkins, taught by our project staff. Students studied either literature or social science. At the end of the course each student was rated for humanistic giftedness, on a scale from zero to three, by the instructor and by the project director. The ratings were made independently; however, discussion of the students by the raters may have inflated their reliability, which averaged about .70. The average rating for each student was considered to be an index of humanistic giftedness, i.e., the ratings reflect our judgment concerning how well and effectively these students could reason about sociocultural, moral, and political issues--essential components of humanistic talent as we have defined it. The average rating for the boys was 1.85 (SD = .83); for the girls, $\overline{X}$ = 1.79 (SD = .95). Correlations were computed between scores on the various tests and this criterion variable. Step-wise regression analyses were performed to determine the pattern of variables most predictive of humanistic giftedness.

Results

Table 1 summarizes the SAT-V data in terms of the relevant groups. SAT-V scores for the total Verbal Talent Search sample ($\overline{X} = 442.9$) are comparable to the average score for all college-bound juniors and seniors tested with the SAT in 1972-73, and indicate that students taking part in this testing were on the whole a very select group. Table 1 also suggests that there is a large jump in SAT-V scores between the 7th and 8th grades. The average SAT-V score for the humanistically gifted sample is 585, placing them in the upper 16 percent of all college-bound high school juniors and seniors taking the SAT-V in 1972-73. Thus the final sample of 58 contains some unusually able youngsters as defined by a well-standardized measure of verbal achievement.

Insert Table 1 about here

In terms of their background characteristics, these 58 students were predominantly upper-middle class. Their parents are well-educated (80% of the mothers and 88% of the fathers have at least a college degree) and 78% of the fathers are in professional level vocations.

Insert Tables 2, 3, and 4 about here

Tables 2, 3, and 4 present information concerning the personality and cognitive functioning of our gifted sample. In general, the scores are impressively high, particularly when compared with scores for average

13-year-olds. On the Terman Concept Mastery Test, for example, the average score of 60.6 is greater than the average score ($\bar{X} = 56$) for Air Force Captains as reported in the Terman Manual. An average score on the Remote Associates Test of 15.9 is on a par with UCLA freshmen as reported in the RAT Manual. The gifted sample's score of 21.4 on the Chapin Social Insight Test, a measure designed to assess interpersonal and social acuity, is also equal to the mean score for college freshmen. In terms of cognitive functioning, our gifted sample can be described as having a well-defined ability to think abstractly, to relate ideas that are remote in ordinary semantic space (i.e., to form unusual and potentially creative associations), and to formulate socially insightful solutions to interpersonal dilemmas (demonstrating thereby a precocious level of social acuity). Thus humanistic giftedness as defined by SAT-V is associated with abstract reasoning capacity, original mentation, and perceptive social judgment.

The personality correlates of this very able group are described in terms of the California Psychological Inventory (CPI), the Myers-Briggs Type Indicator (MBTI), Holland's Self-Directed Search (SDS), and the Barron-Welsh Art Scale (BWAS). These youngsters appear similar to adults of slightly more than average social effectiveness. However, they score noticeably higher than adults on CPI scales for Self-Acceptance, Achievement via Independence, and Flexibility. This indicates a remarkable degree of self-confidence, spontaneity, independence, and, possibly, self-indulgence. When the gifted sample is compared with youngsters their own age (Lessinger & Martinson, 1961) they present a picture of unusual personal soundness, social effectiveness, and maturity of interests.

On every scale except Communality (a validity key) the enrichment group scores about one and a half standard deviations above an average eighth grade sample. This suggests that they are substantially more socially poised, mature, ambitious, intellectually motivated, and self-confident than their less talented peers.

Moreover, in comparison with a gifted sample of the same age described by Lessinger and Martinson (1961), these students receive markedly higher scores on scales that reflect perceptiveness, intellectual ability, and creative potential.

The CPI describes how a person appears to others who know him well. The MBTI, on the other hand, characterizes people in terms of how they use their minds. As Table 4 indicates, the boys in our sample are Introverted, Intuitive, Thinking, Perceivers (INTP's). According to the MBTI Manual, such persons are interested in principles rather than things, ideas rather than people and situations. They tend to be intellectually decisive but socially shy and detached, and they excel at mathematics, philosophy, and psychology. As teachers they are more interested in ideas than in students; as researchers they are more interested in solutions than applications. The girls are Extraverted, Intuitive, Feeling, Perceivers (ENFP's). Such women are enthusiastic innovators, with a good deal of imagination, confidence, and impulsive energy. They are interested in people and are good at manipulating them. In the absence of self-discipline, however, these persons tend to squander their ability and energy on ill-advised and irrelevant tasks. At their best they may be inspired teachers, scientists, or artists.

Data from Holland's SDS further support these patterns; these data suggest that the boys have primarily Investigative interests; consequently, they will tend to be academically oriented, socially withdrawn, analytic, critical, rational, curious, and interpersonally reserved. The girls are primarily Artistic, and should be original, intuitive, and spontaneous, preferring unstructured problems and environments. They also tend to be socially outgoing and interested in people. Although the boys' and girls' Holland codes were equally congruent with their mothers' codes, there was a significant difference in congruency with fathers' codes.

The creative potential of this group can be estimated by means of the Barron-Welsh Art Scale, and by a CPI-based regression equation. The Barron-Welsh Art Scale, a measure of preference for complexity in visual designs, has been found repeatedly to correlate with demonstrated creativity in adult life. The average score of 23.1 for our youthful sample is substantially higher than the average score for adults (15.1 for men, 18.1 for women) in general. Using a CPI regression equation originally developed to predict creativity in architects (Hall & MacKinnon, 1969) the average score for our sample was 14.3; for the girls the score was 16.0; the figure for the boys was 12.1. The mean score for creative architects in Hall and MacKinnon's sample was 11.7.

Responses to the biographical inventory indicated that these youngsters read avidly, that they have many hobbies, that most have several close friends in school, and that the girls write more for enjoyment than the boys. Boys have more science hobbies and are more interested in mechanical and electronic objects.

The foregoing can be summarized as follows. Humanistically gifted adolescents, as defined by very high scores for SAT-V, are bright, socially perceptive, and potentially creative. There are also important sex differences: the boys are introverted, theoretically oriented, socially reserved--junior stereotypes of the ivory-tower academic; the girls are extraverted, action-oriented, and socially outgoing--they seem to be enthusiastic innovators, but perhaps fickle and impulsive.

These impressive signs of talent and competence generally accord with Terman's findings concerning the favorable attributes of high intelligence. Nonetheless, we were primarily impressed with how much these youngsters varied in terms of their ability to reason judiciously and to reach sound, defensible conclusions. Simply stated, in spite of their high test scores there seemed to be a normal distribution of "good sense" within the group, based on quality of each student's writing and class participation.

The staff ratings were designed to help us determine the characteristics of those students who were impressively cogent and incisive in dealing with complex social, moral, and political issues. Correlations were computed between 51 assessment variables and staff ratings, separately by sex. With the exception of the Barron-Welsh Art Scale and the Conventional scale of the SDS, this correlational analysis was not very fruitful, which may be due in part to some restrictions of range inherent in this sample (see Tables 2, 3, 4, and 5).

The 12 variables with the largest zero-order correlations with the staff ratings were used in a step-wise regression analysis to identify the best linear combination of these variables to predict humanistic giftedness. For girls the five variable equation included three items

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Insert Table 5 about here

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from the biographical questionnaire, Communality from the CPI, and Terman's CMT. The multiple r for this five variable equation was 0.58 ($p < .05$). For the boys, the equation included congruency with mother's Holland code, three items from the biographical inventory, and level of father's occupation. The multiple r was 0.79 ($p < .01$).

For girls the equation is:

staff rating = -.10 (CPI Communality) + .55 (having a significant part in a play) + .01 (Concept Master Test) + .10 (inventing or writing) + .12 (writing poems) + 3.24.[2]

For boys the equation is:

staff rating = .65 (Congruency with mother's Holland code) + .05 (total Biographical Inventory) - .08 (CPI Achievement by Conformance) + .61 (scientific hobby) + .33 (level of father's occupation) - 2.35.[3]

Discussion

Our initial selection procedures produced an over-representation of upper middle class subjects, and this restricts the generality of our results. Nonetheless, the findings of the first two years of a study of humanistic precocity indicate that bright and talented students can be identified on the basis of SAT-Verbal scores, and that, as originally reported by Terman (1925-1959), such talented adolescents are in many ways better endowed than their less gifted peers.

However, we found that within a group of very bright youngsters there is still considerable variation in the ability to reason well.

It appears that above a certain level of tested intelligence the critical determinants of humanistic performance (particularly for boys) may be personality and biographical variables. In this otherwise rarified sample, humanistic precocity for girls seemed related to unconventionality (CPI Communality scores), role-taking ability (acting in plays, and possibly writing), and abstract reasoning ability (CMT). For boys humanistic precocity was a function of good adjustment based on encouragement by a parental model (as reflected in congruence with mother's personality), energy level (total score on our Biographical Inventory), independence (low scores for CPI Achievement via Conformance), and social class. No claims are made for the generality of these variables and their regression weights. We would expect, however, that the general picture of humanistic precocity for boys and girls as mirrored in this equations has some validity.

Finally, one may ask whether we have identified the sorts of youngsters who will become Dag Hammerskölds, Willie Brandts, and Golda Meirs. William James argued that "...effective genius is formed ...when a superior intellect and a psychopathic temperament coalesce." This type of person "...is liable to fixed ideas and obsessions..." and strives relentlessly to put his ideas into action (James, 1958, p. 36). MacKinnon, too, referring to highly effective individuals, speaks of "...rather clear evidence of psychopathology, but also evidence of adequate control mechanisms..." as testified by their success (MacKinnon, 1962, p. 488). Terman is largely credited with destroying the "myth" that genius is associated with drivenness. Our data clearly support his finding that intellectual giftedness, psychometrically defined, is associated with good adjustment and psychological health. It is also clear that, although Terman's subjects were high achievers by conventional standards, none were of Nobel quality--and we had the same feeling about our subjects. There may be a qualitative difference between the kinds of genius identified by standardized measures of intelligence and the genius of a Jefferson, Talleyrand, or Disraeli. In explaining these latter cases, James' myth may have to be resurrected.

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Footnotes

[1] This research was supported by a grant from the Spencer Foundation to the first author.

[2] "Having a significant part in a play" is scored 1 or 0 (yes or no). "Inventing or writing" is a five point, self-report index of the number of objects invented or literary products generated. "Writing poems" is a self-report index of frequency of writing poems, ranging from 0 (never) to 3 (frequently).

[3] "Total biographical inventory" is the sum of the scores of all items on the biographical inventory, ranging from 0 to 76. "Scientific hobby" is scored 1 or 0 (yes or no).

Table 1

Scholastic Aptitude Test - Verbal Scores

	1973			1974		
Group	N	Mean	SD	N	Mean	SD
A. Total Talent Search						
7th Grade Girls	65	391.8	87.1	114	412.4	80.3
8th Grade Girls	99	473.3	88.7	142	472.1	91.8
7th Grade Boys	51	409.4	77.5	68	416.2	82.2
8th Grade Boys	66	475.8	89.5	98	453.2	77.6
B. Enrichment Group						
Enrichment Group - Girls	17	599.4	33.4	16	570.6	61.8
Enrichment Group - Boys	14	610.7	30.2	12	542.7*	81.9

Note--.*denotes a significant sex difference ($p < .01$)

Table 2

Enrichment Group Cognitive Test Results

	Girls		Boys		Correlations with staff ratings	
	N=33		N=25			
	Mean	SD	Mean	SD	Girls	Boys
SAT Verbal	587.6	50.1	580.8	67.0	.07	.05
Remote Associates Test	16.5	3.8	15.0	4.4	.01	.24
Terman Concept Mastery Test	58.2	20.7	63.9	21.5	.27	.09
Chapin Social Insight Test	22.5	5.0	19.8*	5.1	.17	.24

Note--.*denotes a significant sex difference ($p < .05$)

Table 3

Enrichment Group CPI Results

	Girls N=33		Boys N=24		Correlations with staff ratings	
	Mean	SD	Mean	SD	Girls	Boys
California Psychological Inventory						
Dominance	27.7	6.6	28.2	5.5	.09	.17
Capacity for Status	19.8	4.9	19.8	3.3	.31	.24
Sociability	24.6	5.2	24.6	4.9	.20	-.01
Social Presence	35.8	7.3	34.7	6.1	.18	.05
Self-Acceptance	21.4	3.8	21.4	3.8	.04	.16
Sense of Well-Being	34.0	5.4	33.4	5.1	.14	.01
Responsibility	31.0	4.6	29.2	4.8	.11	.10
Socialization	38.6	5.8	36.5	5.5	-.06	-.13
Self-Control	25.3	8.5	26.5	7.9	.10	-.03
Tolerance	23.1	4.9	21.3	5.1	.07	.18
Good Impression	14.4	5.3	15.5	6.1	-.01	.20
Communality	25.2	2.1	23.7*	2.8	-.38a	-.18
Achievement via Conformance	25.7	4.2	25.3	4.1	.17	-.26
Achievement via Independence	21.6	3.9	21.7	3.7	.07	.07
Intellectual Efficiency	40.3	5.1	40.0	4.9	.05	.14
Psychological Mindedness	11.2	3.1	12.8*	2.5	.03	.10
Flexibility	13.1	4.0	12.5	4.3	.03	.11
Femininity	22.7	3.1	19.0***	3.4	-.10	-.31
Empathy	24.0	4.1	21.7*	4.1	.18	.30
Autonomy	18.8	4.3	18.5	3.1	.20	.06

Note.--asterisk denotes a significant sex difference (* $p < .05$; ***$p < .001$)

a: significant correlation ($p < .05$)

Table 4

Enrichment Group Myers-Briggs, SDS, Barron-Welsh and CPI Creativity Equation Results

	Girls N=33		Boys N=24		Correlations with staff ratings	
	Mean	SD	Mean	SD	Girls	Boys
Myers-Briggs Type Indicator						
Extraversion	15.8	6.5	11.7 *	5.8	.15	.18
Sensing	3.2	2.9	7.0**	6.6	-.09	-.08
Thinking	4.5	4.3	11.9***	5.8	.09	-.01
Judging	9.5	6.8	11.3	7.5	-.04	.07
Introversion	11.2	6.9	14.4	5.8	-.14	-.09
Intuition	20.1	4.0	18.4	5.3	.17	.05
Feeling	16.8	5.3	9.2***	6.1	.00	-.01
Perception	17.5	7.7	15.7	8.0	.02	-.04
Holland's Self Directed Search	N=30		N=24			
Realistic	1.2	1.9	3.0**	2.5	.10	.12
Investigative	8.4	3.8	11.7**	3.4	.01	-.04
Artistic	11.2	2.9	6.1***	4.0	-.13	.18
Social	8.4	3.9	5.7**	2.9	-.07	.24
Enterprising	2.9	2.2	4.9**	2.9	-.01	.00
Conventional	0.8	1.0	1.3	1.5	-.44*	-.53*
Congruency with mother's Holland Code	2.8	0.9	2.6	1.0	-.09	.57**
Congruency with father's Holland Code	2.6	0.9	2.0*	1.0	-.29	.21
Barron-Welsh Art Scale	24.0	13.0	21.9	13.2	.06	.42*
CPI Regression Equation for Creativity	16.0	4.5	12.1**	4.5	-.07	.01

*p <.05

**p <.01

***p <.001

Table 5

Correlations of Staff Ratings with

Variables Listed

	Girls (N=33)
Biographical Inventory Items	
Number of collections	-.24
Frequency of attending plays	.19
Acting in plays	.36*
Inventing or writing	.21
Writing poems	.23
Number of paintings framed	.29
	Boys (N=25)
Biographical Inventory Items	
Art-writing hobby	.26
Scientific hobby	.26
Number of frightening items when young	-.38
Number of times stayed up late for project	.34
Number of close friends	-.36
Total Biographical Inventory activity score	.29
Level of father's occupation	.31

*$p < .05$

Appendix D

Evaluation of a program for the enrichment of humanistic talent

Peter McGinn and Mary Cowan Viernstein

If our contemporary society were a person, a clinician might hesitate to call it healthy. A Jungian therapist would see it as imbalanced. The zeitgeist-personality is overinvested in its animus, technological achievement, while it has repressed its anima, humanism. It can be easily argued that such a split is uncharacteristic of a productive zeitgeist.

This animus nurtures talentin science and technology, and the present era will be remembered as one of great inventions and discoveries. But it will also be wondered why this era produced so relatively few great moral thinkers or social leaders. The authors are concerned about this lopsided emphasis on technical achievement. For the past three years we have been involved in developing means to identify humanistic talent in early adolescence and to foster its development (Hogan, Viernstein, & McGinn, 1975).

Humanism is used here in its traditional sense--it refers to a concern with ethics and social philosophy, and with the nature of a just society. It is the application of all our intellectual powers (in the broadest sense) to understanding man and improving his condition. In this view, intelligence is more than the capacity to analyze and abstract. It also includes depth of judgment, perspective, sensitivity, recognition and appreciation of complexity, and a habitual willingness to question.

The purpose of this paper is to describe and evaluate a program for enhancing humanistic giftedness. Given the overarching goal of fostering intellectual talent in young students, several possibilities presented themselves. Plato had developed a model, the philosopher-king, in The Republic, but of course that is a utopian vision, almost incomprehensible in our present world. A cultural enrichment program, akin to a "great books" curriculum, is a second model (the multiple vitamin approach), and radical reformation of the educational system as proposed by A. S. Neill (1960) or possibly even Coleman (1974) represents a third.

For an initial attempt, however, we chose a simple, straightforward model--"the mirror-image approach." Stanley and his associates (Stanley, Keating, & Fox, 1974; Keating, in press) have demonstrated that students exceptionally talented in mathematics may be identified at an early age (junior high school) and passed rapidly through a mathematics sequence. They have used a very difficult standardized test designed for much older students, the quantitative section of the Scholastic Aptitude Test (SAT-M) to select these mathematically precocious youngsters. The mirror-image is to identify verbally gifted students using SAT-Verbal, and then provide them with a sophisticated academic experience. The purpose of this paper is to report what can be accomplished by the mirror-image approach to facilitating humanistic competence.

Method

Sample

The subjects were 52 seventh and eighth graders, 21 males and 31 females. They were selected on the basis of exceptional performance on the verbal portion of the SAT. They were part of an original group of over 1400 who participated in either of two verbal talent searches (Hogan, Viernstein, & McGinn, 1975) or a mathematical talent search (Stanley, Keating, & Fox, 1974). This sample is exceptionally able; the average score on SAT-V was 580, which places these seventh and eighth graders in the 85th percentile of eleventh and twelfth graders who are applying to college. Most were from small, upper middle class families. Their parents are well-educated (over 80% have at least a college degree). Other ability and personality tests indicate that these students are multitalented. They appear substantially more socially poised, mature, and intellectually motivated than less talented students their own age (McGinn, in press; Hogan, Viernstein, & McGinn, 1975).

Experimental Design

A variation of a pre-test post-test control group design was used. See Table 1. The project described here took place over two summers. In year 1 students chose to participate in either a social science (X) or a creative writing course (Y), both of which

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Insert Table 1 about here
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were designed and conducted by the authors or their associates. All students in year 1 also took part in a supplementary "creativity course" (Z), The Productive Thinking Program (Covington, Crutchfield, Davies, & Olton, 1972). In year 2, a second group of students was again offered the choice of social science or creative writing. The Productive Thinking Program was not offered in year 2. If equivalence on pre-tests between years 1 and 2 can be established, this design permits a clear test of The Productive Thinking Program. It also allows a weak test of the relative effects of the social science and creative writing courses. Unfortunately, the uniqueness of the sample and other administrative considerations made a no-treatment control group very impractical.

A long term evaluation of these courses will be concerned with a comparison of the real-life performance of the students who participated in the various curricula. The mirror-image approach suggested another, more immediate evaluation, however. Can improvement be demonstrated on standardized tests of verbal intelligence or creativity? The Concept Mastery Test (CMT) was designed for use with Terman's gifted group (Terman, 1956). Thus it was sufficiently difficult for the present sample also. It consists of two sections, vocabulary and analogies, which are summed to give a total score. There is only one form of this test, and it was used for both pretest and post-test.

Creativity was assessed by the Remote Associates Test (Mednick & Mednick, 1967) and the Guilford Consequences Test (Wilson, et al., 1953).

The RAT demands that the student connect ideas whose relationship is not obvious at first. Each item consists of three words for which a single best associate can be given. For example, in the item: POKE, GO, MOLASSES, the answer is SLOW. The test contains substantial face validity in that it requires the cognitive flexibility and ability to produce unusual ideas often associated with creativity. Mednick and Mednick (1967) have summarized research that indicates the RAT is a better predictor of creative scientific performance than are grades or aptitude tests. Critics (e.g., Wallach, 1970) have presented evidence, however, that suggests that the RAT has two dimensions--associative flexibility and verbal ability. Thus it should not be considered completely independent of intelligence. Only one form of the RAT is published; a second experimental form was obtained from the authors to use as a posttest.

The Guilford Consequences Test is one of several such tests measuring ideational fluency and divergent thinking. Five items describe unusual situations for which the student must list as many consequences as possible. For example: What would be the results if people no longer needed or wanted sleep? Although these consequences may be scored in several ways--number of different consequences, number of different categories of consequences, originality, and uniqueness--only the first was used in this study. The research of Wallach and others (Wallach, 1970) suggests that the total number of consequences has both convergent and discriminant validity as a measure of creativity and ideational fluency independent of intelligence. Different forms were used for pre-test and post-test, one published by Guilford and the other designed expressly for this study.

Finally, a semantic differential was used to assess students' attitudes toward school, Mathematics, English, and college. This instrument was developed by Hogan and Horsfall (1970) to evaluate the effects of a tutoring program on a group of inner city youngsters. It measures attitudes along three dimensions: liking, perceived utility, and perceived accessibility. That is, do students like school, do they see education as useful, and do they see it as attainable? There were nine scales ranging from 1 to 7 for each of the four concepts listed above. Thus each student made 36 judgments. These may be summed to yield a total score or each concept or dimension may be studied separately.

Description of the Treatments*

Social Science, Year 1. The course consisted of seven weekly meetings of two hours each. It was a general introduction to the social sciences, comparable in difficulty to a first year course at a selective university. The course was centered on three books on cultural anthropology, which were studied from the sociological point of view. Psychological aspects of the readings were emphasized where they were appropriate. The intellectual objective of the course was to show how people create their cultures, and how the culture in turn creates its people. Analysis of ideas, in terms of such aspects as implicit and explicit assumptions, internal consistency, explanatory power, and validity, was stressed. The basic emphasis was on method and conceptual innovation.

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*A complete description of all courses is available from the authors. Included are detailed course syllabi, and instructors' descriptions of each class.

The instructor attempted to serve as a guide rather than an authority, stressing respect for the students' intellectual efforts. The aim was a search for truth about the situation (i.e., trying to avoid use of the "big lie" as a control device), to follow an idea to its conclusion rather than to adhere to a rigid singleness of purpose. There was an effort to reward diverse contributions, to encourage each individual's talents, and to help the students develop their own values and purposes. The strategy was an attempt to supply an atmosphere of freedom to try out ideas without penalty within a context of relatively high academic standards.

Social Science, Year 2. This course was designed essentially as a replication of the first year's program, although there were differences. The actual number of hours in class was increased by approximately 50%; there were eight weekly meetings of three hours each. In addition, there was a new instructor, a new set of readings was used, and more emphasis was placed on written home assignments.

Creative Writing, Year 1. The course was prepared as a first-year college course in writing, and aspects of writing essential to performance in college level social science and humanities classes were stressed, although other features conceived to be basic to creative writing were also included. The seven major objectives for the students included: learning to analyze and use different writing styles; writing precise descriptions and explanations; writing persuasive arguments; recognizing logical errors in others' arguments; abstracting articles and essays; writing imaginative essays or poems; and asking the kinds of questions that would be asked in various disciplines in college work.

As in the Year 1 Social Science course, the class had seven weekly meetings of two hours each. Classes consisted of discussion of assigned readings, of the students' present and previous work (some of which was read aloud for criticism), and of ways to improve both writing and thinking. A basic text, Language in Uniform, was used and supplemented with excerpts of other writings for specific assignments.

Creative Writing, Year 2. In contrast to the course offered during the previous summer, no attempt was made to train students in the more practical aspects of college-level writing skills, such as outlining, summarizing, or preparing reports. The emphasis was solely on practice and training in creative writing and critical reading. This change was in response to suggestions made by the first year's students and instructor, who taught the second year as well. As with the second Social Science course, class time was increased to eight weekly three-hour meetings.

Productive Thinking Program. This course was offered as a supplement to all students in the writing and social science courses during the first year of the program. The class met for six weeks, one hour per week. The rationale underlying the course was a belief that skills in productive thinking can be demonstrated and made accessible to young students through a focal and systematic effort.

Both standardized materials and supplementary discussions were employed. The objective materials consisted of The Productive Thinking Program, developed by Covington, Crutchfield, Davies, and Olton. This semi-programmed package contains 15 basic lessons; in each a mystery unfolds. At selected points in the lesson, students are asked to reply to pointed questions or to generate suggestions about the proper course of action for the main characters.

Direct feedback is given in the lesson booklets which affords students an immediate evaluation of the quality of their responses. To complement the core of the package, a lengthy workbook is included that offers the opportunity to exercise newly developed skills in assessing and solving real-world problems such as the discovery of penicillin, the development of the hydrofoil, and the consequences of the building of the Aswan dam. Emphasis is placed both on the generation and critical analysis of a variety of approaches, a process that presumably leads to the most productive and worthwhile ends.

The less structured aspects of the course consisted primarily of lectures, class assignments, and class discussions. The purpose of these activities was to discuss and to amplify the structure of the productive thinking package and to emphasize the unusual, complex, and subtle relationships that exist "out there," relationships that can be discovered by disciplined thinking.

Hypotheses

The enrichment program described above might be expected to produce changes of three types: (a) changes in convergent thinking; (b) changes in divergent thinking; and (c) changes in students' attitudes towards school. An improvement in vocabulary and reasoning ability as reflected by scores on the Concept Mastery Test was predicted for all four groups. The advanced level of the curriculum and the heavy instructional emphasis on intellectual skill development, along with the stimulation provided by very able classmates should all contribute to an increase in tested ability.

Improvement in divergent thinking was considered desirable for all groups, and all instructors were alert to encourage its development. Nevertheless, relatively more change can be predicted for the groups that received direct training in creativity through the Productive Thinking Program (PTP). Using the Torrance Tests of Creative Thinking, Treffinger, et al. (1974), and Shively, et al. (1972), found significant improvement on tests of verbal fluency after exposure to the PTP. Their research involved elementary students--the level for which the PTP was originally developed. Ripple and Dacey (1967) did not find similar results with an eighth grade sample, however, and suggested that as it stands the PTP loses effectiveness as the age of the students increases. Improvement was expected with the present sample because the Productive Thinking Program was supplemented by activities which made it appropriate for our more advanced group.

There were no specific predictions made for the semantic differential, although a general improvement in attitude was expected based on the previous research of Hogan and Horsfall (1970), using a very different type of sample. The use of the semantic differential in the present study was exploratory.

Results

Tables 2 and 3 present a comparison of results for the Year 1 and Year 2 programs. The first essential fact to notice in Table 2 is the near equivalence of the two groups on the pre-tests. None of the differences is close to significance. This is true also when the creative writing groups are compared with the social science classes. Although some differences may be attributed to students by virtue of their selection of different courses, no significant differences were discovered on the three pre-tests.

As predicted, there was significant improvement both years on the Concept Mastery Test. In addition, Table 3 shows that the programs both years were equally effective in demonstrating this improvement.

Also as predicted, there was significant improvement on creativity tests only in Year 1, when the Productive Thinking Program was employed. The results for the Consequences are straightforward. Scores for students in Year 1 improved significantly while those in Year 2 remained essentially unchanged, as may be seen in Table 2. This comparison is confirmed by the significant difference in gain scores reported in Table 3.

Insert Tables 2 and 3 about here

The results employing the RAT are less strong but in the same direction. Although there was no significant improvement either year, students in Year 2 actually lost ground. Thus there was a significant difference in terms of change scores in favor of students in Year 1 as predicted.

The results of a multiple regression equation performed to predict gain scores on each of the three criteria confirm the central role of the Productive Thinking Program in improving creativity scores. Predictors used were: participation in PTP, sex of student, and enrollment in writing or social science. Using these three variables, gain scores on the Concept Mastery Test were unpredictable. Less than 2% of the variance could be accounted for. On the Consequences, however, 18% of the variance could be explained, 14% by the PTP alone. For the RAT, 9% of the variance was due to the PTP; another 4% was accounted for by the positive correlation between the creative writing course and RAT gain scores.

From pre-test to post-test there were no significant differences for attitudes as measured by the semantic differential. On a scale of 1 to 7 (positive to negative), the average pre-test rating was approximately 2-1/2, a rather positive figure. After the program these evaluations shifted almost imperceptibly toward the negative pole. There was no significant difference between students in the two years of the program.

Discussion

The results of this program are encouraging; however, they can be considered valid only for this restricted sample. For these very bright students, an intensive and very sophisticated academic intervention results in impressive gains in reasoning ability even over a very high starting point. The lack of a no-treatment control group is grounds for caution. It is possible that the obtained gains may be due to practice, but these students are experienced test takers who had achieved remarkably high scores even on their first exposure to the Concept Mastery Test. Moreover, both the RAT and the Consequences test would seem more susceptible to practice effects even with alternate forms than the CMT, but there was no improvement on these tests the second year, when the Productive Thinking Program was not employed.

Since the creative writing and the social science courses seemed to produce an equal degree of improvement, the impetus for change is most likely independent of the unique content of each of these courses. MacKinnon (1966) has suggested that the value of such courses as writing or social science lies in their common concern with the human experience. In such areas the student is brought to an awareness of the meaning and use of analogy and metaphor, and the symbolic equivalents of varied experiences. They have the effect of liberating the mind, opening students to the possibilities of imagination, and imbuing them with an appreciation of the nature of human nature.

Is is equally possible, however, that the factors responsible for students' improved performance are more mundane. First, the instructors of these courses were graduate students in their respective fields, and most likely have an orientation towards the subject matter that is different from that of most junior high teachers. The creative writing teacher, for example, is a serious writer with a number of publications to her credit. Likewise the social science instructors are actively engaged in psychological research.

Second, the academic requirements of these courses were extraordinarily demanding. The standards of performance were made quite clear to the students, and they received regular guidance towards meeting these goals. In addition, readings and assignments were designed to challenge them as they were probably seldom challenged otherwise. Moreover, the emphasis in class upon discussion and mutual criticism encouraged students to assume responsibility for their own learning and to be less reliant upon the instructors.

Finally, it is very probable that the students benefitted from contact with one another. For many of them, this was their first opportunity for extended interaction with intellectual peers of their own age. Whether or not this is a sufficient enrichment treatment, it is probable that it is a necessary condition for the other factors to have a positive effect.

The data collected on divergent thinking support two related conclusions. First, performance on such tests is remarkably resistant to change. A high level enrichment program had no effect on these scores when it was not coupled with a focused attempt to enhance creativity. Thus, even an academic environment that encourages spontaneity and intuition does not appear sufficient by itself to encourage divergent thought. Divergent thinking appears to depend on direct skill development.

Second, this study supports the research that has found the Productive Thinking Program to be a satisfactory curriculum for this purpose. It extends the previous research in a very significant way, however. The PTP was designed primarily for average fifth graders, but its authors claim the PTP should be useful for students along all points of the intelligence continuum. To our knowledge, this is the first empirical test of this hypothesis for very bright, older students. According to the two criteria used, it was quite successful. Of course, it must be remembered that the PTP was supplemented by other activities designed to make it more appropriate for our sample.

The lack of attitude change as measured by the semantic differential is somewhat puzzling. Its earlier use by Hogan and Horsfall demonstrated that it is sensitive enough to measure change. Presumably, the effects of an enrichment program on the attitudes towards school of a rather advantaged sample are more subtle than the effects on a disadvantaged group. Also it is possible, as one of the participating students recently suggested, that the full impact of this intervention does not impress students until they have returned to their regular classrooms. In addition the experience may supply them with a new standard of reference that is independent of the ones they implicitly used when making their earlier ratings. These factors may explain our null results, but they still give no clue as to what types of attitude change might be expected if a more sensitive instrument were used.

At this point it is possible to present an evaluation of the appropriateness of the mirror-image approach to humanistic talent. First, this approach has led to the design of an intervention program that has measurable short-term effects. Furthermore, these results are at least theoretically related to humanistic accomplishment. The mirror-image approach has also confirmed that there is a pool of academically talented, highly verbal adolescents who are begging for intellectual stimulation. On the other hand, our clinical impression of the children selected by the mirror-image approach is ambivalent. We were tremendously impressed by roughly one-third of the sample but another one-third seemed to demonstrate no exceptional promise. We are forced to conclude that "verbally gifted" and "humanistically talented" are not synonymous although they are probably related. Our observations and the research of Holland (1961) and others further suggest that we must at least supplement aptitude measures with some indices of accomplishment.

In summary, this paper has reviewed a research program designed to foster humanistic talent. A successful project for mathematically talented youngsters served as a model for the present study. Students with exceptionally high verbal ability participated in special summer enrichment courses. Impressive gains were recorded on a test of verbal ability. Performance on creativity tests was likewise enhanced by participation in a productive thinking program. These positive results demonstrate both the need for, and the potential benefits of, special courses for verbally gifted youngsters. In terms of the long range goals of the project, however, the method of selection and possibly the type of enrichment need to be modified. Hogan, Viernstein, and McGinn (Appendix C) and Daurio and Hogan (Appendix B) have summarized data indicating that verbal precocity and humanistic giftedness are not equivalent. An optimal enrichment program may require a break from a model based upon academic acceleration.

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Table 1

Experimental Design

Year 1	O_1	X Z	O_2			
	O_1	Y Z	O_2			
Year 2				O_3	X	O_4
				O_3	Y	O_4

Table 2

Comparison of pre-test and post-test scores for

Year 1 and Year 2 enrichment groups

	Year 1 (N = 26)					
	Pre-test		Post-test			
	Mean	SD	Mean	SD	t	p
Concept Mastery Test	66.0	21.3	76.2	19.0	4.2620	.001
Consequences	29.1	9.3	34.3	9.1	3.6093	.001
Remote Associates Test	16.5	4.7	17.7	4.1	1.4749	NS
	Year 2 (N = 26)					
Concept Mastery Test	58.2	19.3	71.2	15.8	4.5388	.001
Consequences	28.1	7.0	28.8	8.1	1.0957	NS
Remote Associates Test	16.0	3.3	14.7	3.2	-1.7521	NS

Table 3

Average gain scores -- Year 1 and Year 2

Enrichment Groups

	Year 1 (N=26)		Year 2 (N=26)			
	Mean	SD	Mean	SD	t	p
Concept Mastery Test	10.2	12.1	13.0	14.6	-0.7550	NS
Consequences	5.2	7.3	0.7	3.4	2.8064	.01
Remote Associates Test	1.2	4.3	-1.3	3.7	2.2623	.05